Manitoba

Annual Report 1985 - 86

Natural Resources

Manitoba

Minister of
Natural Resources

His Honour
George Johnson
Lieutenant Governor of Manitoba

Your Honour:

I am pleased to present to you the fifty-fifth Annual Report of the Department of Natural Resources, recording the activities of the department for the fiscal year ending March 31, 1986.

Yours truly,

L E Harapiak

Leonard E. Harapiak
Minister

Manitoba

Deputy Minister of
Natural Resources

The Honourable Leonard E. Harapiak
Minister of Natural Resources

Sir:

I am pleased to provide the Annual Report of the Department of Natural Resources for the fiscal year 1985-86.

Respectfully submitted,

R. L. (Nick) Carter,
Deputy Minister

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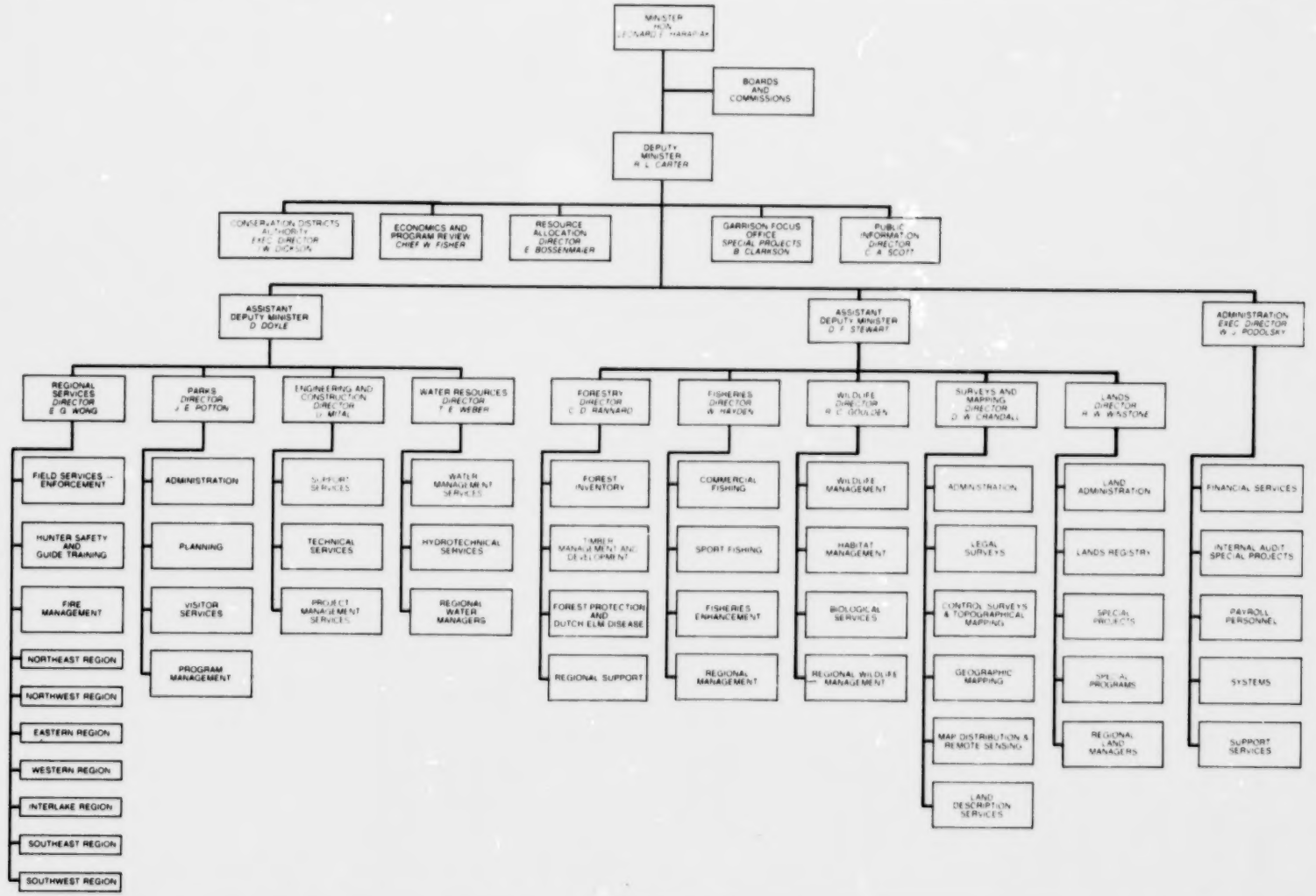
Organization Chart — Manitoba Natural Resources

(March 31, 1986)



Manitoba Natural Resources

Assistant Deputy Ministers

Derek Doyle

Dale Stewart

Executive Directors

Dr. I. W. (Ian) Dickson
Conservation Districts Authority

W. J. (Bill) Podolsky
Administrative Services Division

Directors

Ed Wong
Regional Services

Dave Crandall
Surveys & Mapping

James Potton
Parks Branch

Worth Hayden
Fisheries Branch

Richard Goulden
Wildlife Branch

Peter Lockett
Financial Services

Umendra Mital
Engineering & Construction

Eugene Bossenmaier
Resource Allocation and Planning

Dave Rannard
Forestry Branch

Ken Reimer
Personnel Services

Carol Scott
Public Information Services

Tom Weber
Water Resources

Bob Winstone
Lands Branch

Executive Summary

The department continued to provide a broad spectrum of natural resource programs and related services during 1985-86. In response to the need for fiscal restraint, innovative approaches were developed to maintain several programs that were important to the public and necessary to ensure the wise stewardship of natural resources. The highlights of the year reflect a growing trend for greater co-operation with other levels of government, user groups, associations, private corporations and resource-based industries.

The department indicated an increased attention and priority to soil conservation in 1985-86 by expanding the role and mandate of the Conservation Districts Authority. The Authority now co-ordinates all planning, administrative and program delivery services to Manitoba's conservation districts. The primary objective of the Conservation Districts Program is to enable local interests to play a major role in soil and water management.

Conservation district boundaries are established by Order-in-Council, usually based on a watershed drainage area. Conservation districts conduct programs related to water management, soil conservation, wildlife or any other natural resource issue the district deems necessary in order to manage the resources of the district.

The Conservation Districts Authority has also been charged with establishing new districts in the province. The department has made a major effort this year to promote the program throughout the agricultural regions of Manitoba.

An innovation in commercial fisheries management on Lake Winnipeg was implemented in 1985-86, after extensive consultations with fishermen and a trial pilot program. The Quota Entitlement System, as it is known, will enable fishermen within established guidelines to buy and sell quotas in order to rationalize their fishing operations or recover their equity upon retirement.

A new initiative in sport fisheries management was the introduction of a 3 - day non-resident conservation licence. It allows for a reduced limit of fish and encourages catch and release fishing. The results of the department's efforts to promote catch and release fishing and the use of barbless hooks are encouraging.

Co-operation with the forest industry and federal government has greatly furthered forest renewal efforts and resulted in more intensive management of existing forested lands. Expanded facilities for growing seedlings were well advanced at the Clearwater Nursery near The Pas and Pineland Nursery at Hadashville. At full production 20 million seedlings will be produced annually. Efforts were also made to improve forest stands through mechanical thinning, allowing trees to mature in a shorter period of time.

The battle against Dutch elm disease, spruce budworm, jack pine budworm and dwarf mistletoe continued throughout the province. Dutch elm disease continued to increase in wild stands, but the number of diseased elms in urban centres with control programs remained relatively low. A major outbreak of jack pine budworm had been anticipated for the Moose Lake area in northwestern Manitoba; however, a major spraying program was not required due to lower populations of budworm than had been expected. Spruce budworm and dwarf mistletoe continued to be a concern. Several sanitation programs were undertaken to control the latter.

The 1985-86 fiscal year was a successful one for the Garrison Focus Office. The United States took action to prevent construction of those aspects of the project that could pose a threat to Manitoba's waters. Manitoba's concerns have largely been resolved. The office will continue to monitor the project to ensure that the remaining technical concerns are addressed.

The twenty-fifth anniversary of provincial parks was celebrated in 1986 with a variety of activities and co-operative projects. Manitoba's first wilderness park, Atikaki, added one million acres of Canadian shield to the system, while the Pinawa Dam site, Beaudry Provincial Park and Spruce Woods Provincial Park were redesignated as Provincial Heritage Parks.

The law enforcement activities by Manitoba's Conservation Officers were assisted by an experimental Turn in Poachers (T.I.P.) telephone line. Public use of the T.I.P. line resulted in 70 prosecutions and 21 warnings in 1985-86. Due to the success of the experimental phases, the T.I.P. program will be continued as an operational activity. Increased enforcement activity was also successful in backcountry areas of Whiteshell Provincial Park, dealing with incidents of open fires, over-limits of fish, and liquor-related violations.

Although the wet weather in 1985 resulted in decreased use of provincial park campgrounds, it was beneficial for the forest fire situation. There were 346 forest fires, well below the ten year average of 675, resulting in lower expenditures for fire fighting than in previous years.

The wet conditions throughout 1985 replenished all of the major reservoirs in Manitoba. Fortunately, flooding was minimal. Planning for the Pasquia Polder III project near The Pas neared completion, with construction scheduled for start-up late in 1986. Investigations into improving production through drainage in the Washow Bay area were also undertaken.

Wildlife management efforts were furthered during 1985-86 in a variety of ways. Two moose management agreements were negotiated with Indian bands and user groups in the Waterhen and The Pas areas. Native people have agreed to voluntarily cease moose hunting in G.H.A.'s 8 and 20 until moose populations recover. Several years of drought contributed to the lowest populations on record for several species of ducks, and required restricted hunting seasons. Goose populations remained strong, however, and provided excellent hunting opportunities.

A relocation program was undertaken in the Winnipeg area to remove 114 deer from the city's fast growing white-tailed deer herd. The program was designed to reduce deer-vehicle collisions and lessen damage to gardens, shrubs and crops. The deer are now doing well in their new home near St. Malo.

A major new initiative in wildlife habitat conservation was the passing of **The Manitoba Habitat Heritage Act.** The Act established The Manitoba Habitat Heritage Corporation which will administer the program. The corporation is able to raise funds from both public and private sources, and accept donations of land. Its primary purpose is to secure or enhance significant fish and wildlife habitat.

The department generated a great deal of interest in 1985-86 by recommending the Great Gray Owl as Manitoba's Provincial Bird. The Great Gray Owl is a year-round resident of the province, inhabiting the boreal forest from southeastern Manitoba north to the tree line.

The 1985-86 fiscal year was significant in terms of the steps taken to meet the challenges of resource management. New agencies such as the Conservation Districts Authority and The Habitat Heritage Corporation hold great promise for future initiatives. Both emphasize the involvement of local residents, and greater co-operation with other organizations. The year also marked the first quarter century of provincial parks, highlighted by the establishment of the province's first wilderness park and the involvement of park users in events celebrating the anniversary. Efforts made to improve management of the province's forests, fisheries, and wildlife were also important in furthering the wise stewardship of Manitoba's natural resources and heritage.

Introduction

Manitoba Natural Resources is responsible for the protection, conservation, management and development of Manitoba's forest, fisheries, wildlife, water, parks, and Crown land. Through the management of these resources, the department makes a significant contribution to economic development, creates jobs, provides recreational opportunities, and ensures that the basic needs of subsistence users are met. It also provides protection from floods, wildfires, and other adverse effect of natural resources.

The department includes six branches with clearly defined responsibilities for specific areas of resource management. They are Fisheries, Forestry, Lands, Parks, Water Resources, and Wildlife branches.

Operational and support services are provided by several additional branches. These include Regional Services, Engineering and Construction, Surveys and Mapping, Administrative Services, Public Information, Resource Allocation and Planning, and Economics and Program Review. The Conservation Districts Authority encourages the establishment of conservation districts and co-ordinates their activities across the province. The Garrison Focus Office co-ordinates Manitoba's efforts against the construction of the Garrison Diversion as presently designed.

The following report highlights the activities and accomplishments of the Department of Natural Resources for the fiscal year 1985-86.

Administrative Services

This division provides administrative and professional support to the department, ensuring on behalf of the Deputy Minister that administrative policies, procedures and directives are followed.

Financial Services

This section co-ordinates the preparation of departmental revenue and expenditure estimates; controls and processes departmental accounts payable; ensures that the department claims, collects and credits the full entitlement of revenues and receipts; controls the distribution and sales of wildlife and fishing licences; develops and implements financial information and direction to departmental management, other government departments and central agencies.

Personnel Services

This branch is responsible for recruitment and selection of employees, position classification reviews, payroll and benefits administration, staff training and development, workplace, health and safety, and employee counselling.

Phase 1 of the Affirmative Action plan was developed and approved for implementation in this fiscal year. A self-declaration survey of staff was conducted to identify the target population as part of the plan development. Data was and will continue to be compiled to monitor results of recruitment activity, in order to set realistic recruitment goals in future.

A review of existing hiring practices and procedures was undertaken in anticipation of the Civil Service Commission's move to delegate staffing authority to the department.

The branch pursued initiatives in a number of other areas as well. Executive approval was granted to proceed with the development of a computerized attendance reporting system. Calculation of seniority service for departmental employees was completed and lists were posted throughout the department.

Workplace Safety and Health continued to be important, with a handbook developed to provide provincial safety committees with day to day guidelines on safety procedures. A departmental **Chemicals Manual** was produced and distributed to ensure proper handling and storage of toxic chemicals.

During 1985-86, Personnel Services processed 49 formal competitions, 74 entry level permanent and term appointments, 25 transfers, 73 classification reviews, 81 S.T.E.P. student appointments, 1,600 departmental employee appointments, and 911 fire fighter appointments.

Persons Employed by Manitoba Natural Resources

(July 1985)

	No. of people
Administration and Finance • Resource Allocation and Planning • Economics and Program Review • Public Information Services • Administrative Services Division	108
Regional Services	281
Engineering and Construction	182
Water Resources	94
Parks	54
Lands	50
Forestry	92
Fisheries	64
Wildlife	66
Surveys and Mapping	72
Conservation Districts Authority	8
Sub-Total:	**1,071**
Seasonal Employees	1,506
TOTAL:	**2,577**

Systems Service

Systems Services provides support to the department's management in the review, design, recommendation and implementation of various automated and manual systems. The section is responsible for providing technical support to branches that plan to introduce information processing tools into their organizations. All hardware and software acquisitions are co-ordinated by the section.

In its efforts to enhance the efficiency of staff within the Administrative Services Division, various pieces of electronic hardware were acquired. The Financial Services section acquired three microcomputers, and Operational Support acquired a microcomputer.

Within Regional Services, an Aircraft Management Information System was implemented. This system, based on microcomputers in regional offices, maintains more up-to-date information on costs involved with aircraft flights in the department's fire fighting efforts.

Water Resources continued to expand its computing resources by acquiring eight terminals and upgrading the existing minicomputer. The system was used by professional staff to perform various engineering and technical functions. An upgraded plotter was also acquired.

Alf Hole Goose Sanctuary acquired a microcomputer to enhance the public's visits to the exhibit. Other initiatives undertaken by the Parks Branch included an upgraded microcomputer, a plan to automate the production of the Parks Statistics Book and the preparation of an analysis of the requirements for vacation home lots administration.

To increase the efficiency of the Crown Land Registry, a microcomputer was acquired, as well as a colour terminal intended to tie into the Land Titles System.

Operational Support Services

Operational Support Services provided services in the areas of communications, office and storage accommodation, employee housing, clothing, office equipment, inventories, insurance, vehicles, warehousing and library services.

A major focus for the section was the Records Management Program. It involved the documentation and scheduling of existing and inactive files.

Library services continued to be an important contributor to the department, with some 27,000 books and 325 periodicals available.

Conservation Districts Authority

The Conservation Districts Program in Manitoba received new emphasis in 1985-86 with the expansion of the role and mandate of the Conservation Districts Authority (CDA). The CDA was originally established in 1978 primarily to provide financial and accounting services for administration of provincial grants to the districts. However, as the program grew the need for a single agency to provide and co-ordinate all services to conservation districts became apparent.

In April, 1985, the CDA was established as an agency within Manitoba Natural Resources. Over the course of the year, an office was organized and staffed to provide an improved level of service to the conservation districts. These services included program planning and budgetting, financial and administrative services, and public information. For the first time since the program's inception in 1972, all these activities were provided and co-ordinated through one agency.

Proposed Districts

A major thrust of the CDA in its first year of operation was to encourage the formation of new conservation districts in the province. Considerable progress was made in several areas.

Meetings were held with the municipalities in the Garland River drainage area in 1985-86. Previous discussions with these municipalities had met with a generally negative response, however, in August, 1985, the Rural Municipality of Ethelbert requested further information and agreed to co-ordinate a meeting in November with neighboring municipalities. As a result of this meeting and another in February, 1986, with the CDA, the municipalities agreed to continue independent discussions concerning the formation of a conservation district. Some degree of interest was expressed for the establishment of a conservation district office, with a minimum of financial commitment until a firm decision could be made.

In July, 1985, the RM of Louise held a meeting with the Conservation Districts Authority to examine the possibility of forming a conservation district in the Pembina River drainage system. As a result of that meeting, further discussions took place involving other municipalities in the area.

Similar activities took place in the Washow Bay area of the Interlake, the Elgin Creek drainage area south of Souris and in the Bellsite area on the eastern slopes of the Porcupine Hills.

District Summaries

Whitemud Watershed Conservation District

The major portion of the 1985 annual works program centred on drainage maintenance and bridge and crossing repair and replacement. However, several projects designed to improve agricultural drainage in the district continued from previous years. These included the reconstruction of Perch Creek, the Youill land drainage project, improvement of the Jenson Drain and the Big Grass River Water Conveyance Project. Several runway stabilization projects were completed in the upper portions of the watershed.

Under the Soil Conservation Program, more than 3,600 hectares of forage were seeded and 129 kms of shelterbelts planted. Six new wildlands projects were established in co-operation with local landowners.

Turtle River Watershed Conservation District

The 1985 Water Management Program concentrated on drainage improvement projects on Hansen Creek, Tityk Drain, Clarke Drain, Law Drain, Maguet Drain and Oak/Brunel Drain. The District spent approximately 30% of its budget on repair and replacement of crossings.

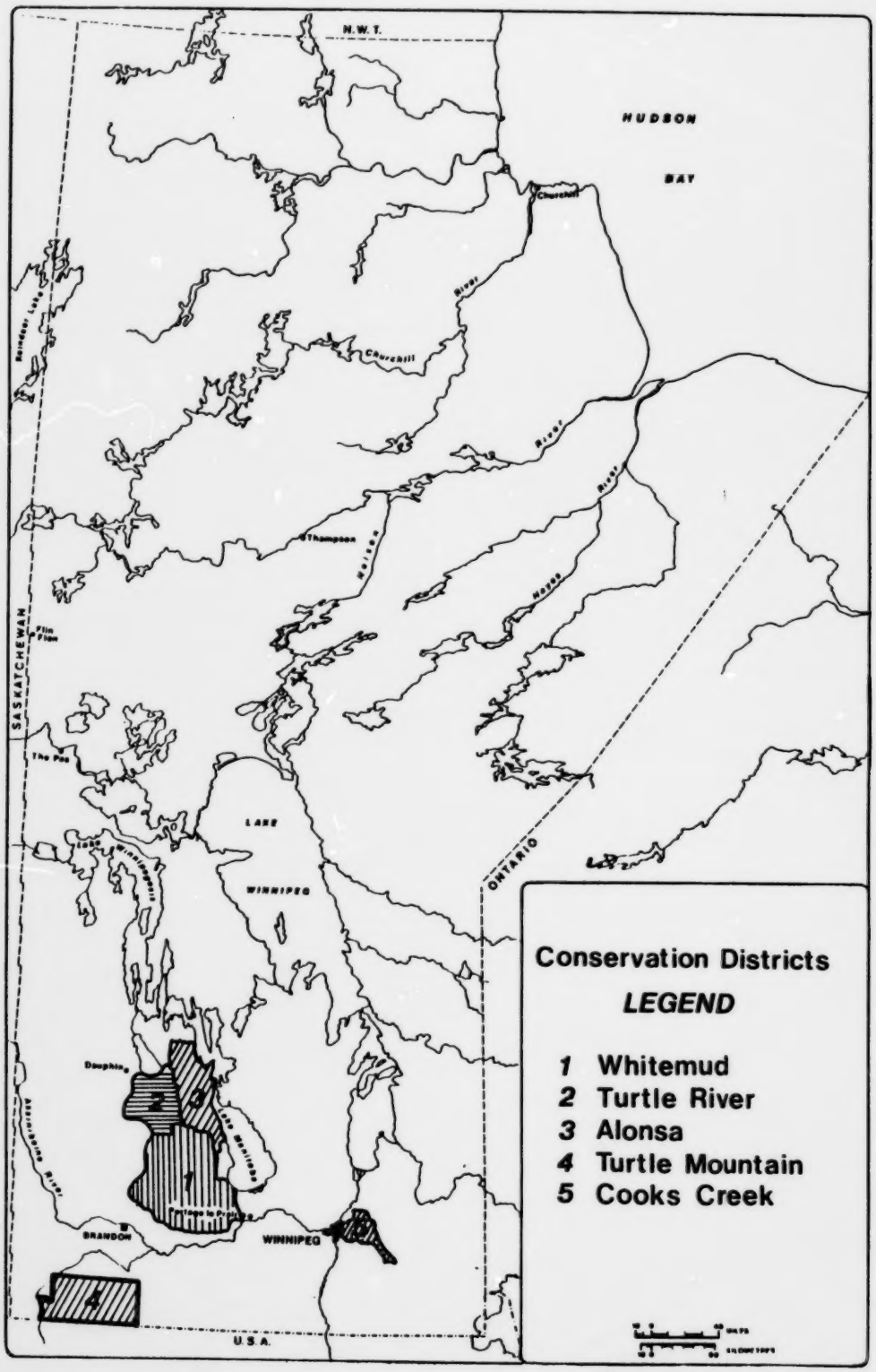
Contracts were signed between the District, PFRA and Manitoba Agriculture to undertake a 3-year, on-farm soil conservation demonstration under the Agri-food Agreement. Three local farmers provided the sites for demonstrating conservation tillage techniques, green manure plow-down and field shelterbelts.

Agreements were signed with Manitoba and Canada to begin implementing a $1.6 million flood protection project for Ste. Rose du Lac. The project is part of the Canada/Manitoba Flood Damage Reduction Program and is expected to be completed by 1989.

Alonsa Conservation District

The major water management project undertaken in 1985 was the improvement of the North Leifer Drain. Other activities included improvement of the Round Lake Drain and the Mellonville Drain.

Ducks Unlimited began construction of the first phase of the Portia Project, a water management project including the Reedy Creek and Sucker Creek watersheds. Independently regulated water management cells will provide maximum benefits for waterfowl and flood control.


N.W.T.
HUDSON
BAY
Churchill
Churchill
River
Rainbow Lake
Thompson
Nelson
River
Hayes
River
SASKATCHEWAN
Flin Flon
The Pas
LAKE
WINNIPEG
ONTARIO
Lake Winnipegosis
Dauphin
Lake Manitoba
Assiniboine River
Portage la Prairie
BRANDON
WINNIPEG
U.S.A.
Conservation Districts
LEGEND
1 Whitemud
2 Turtle River
3 Alonsa
4 Turtle Mountain
5 Cooks Creek

Turtle Mountain Conservation District

Construction of the Adair Dam on Douley Coulee was completed during the summer of 1985. Although the structure had not yet been completed, it was filled nearly to capacity during the 1985 spring runoff. The controlled release of surplus runoff fulfilled the District's primary objective of eliminating downstream erosion and flooding.

On March 26, 1986, the addition of a small portion of the RM of Arthur to the Turtle Mountain Conservation District was approved through Order-in-Council.

Cooks Creek Conservation District

Construction began on the Cooks Creek Diversion during 1985. When completed, the structure will convey part of the flow from the Cooks Creek channel at a point east of Dugald westward into the Red River Floodway. Flooding problems downstream of the diversion will be alleviated. Project costs in 1985-86 were shared between Manitoba and Canada under the Value-Added Crops Agreement.

Other activities included the reconstruction of the North Bibeau Drain and the rehabilitation of the upper portion of the Cooks Creek channel.

Conservation District Expenditures — 1985

District	Provincial Grant	District Share	Total
Whitemud	$ 848,550	$282,850	$1,131,400
Turtle River	471,283	157,095	628,378
Alonsa	134,805	44,935	179,740
Turtle Mtn.	200,750	66,916	267,666
Cooks Creek	176,247	58,749	234,996
Administration Costs	7,252	—	7,252
TOTAL	**$1,838,888**	**$610,545**	**$2,449,433**

NOTE: The Conservation Districts Authority prepares a more detailed Annual Report based on the calendar year which is tabled separately in the Legislature.

Economics and Program Review

This section assists departmental management in using funds efficiently and effectively by providing, on an assignment basis, analytical, economic and evaluation support services.

The analytical and economic studies prepared in 1985-86 included:

- evaluation of the recreational benefits and costs of a dam on Gainsborough Creek in southwestern Manitoba;
- analysis of the impact on the wildlife resource of a proposed Manitoba Hydro road in Northern Manitoba;
- analysis of requests for information received by Public Information Services;
- calculation of the economic impact of an improved and expanded drainage program;
- estimation of the economic impact of the Whiteshell Provincial Park;
- preparation of a methodology for estimating the recreational benefits of parks and other recreational facilities;
- review of policy options related to the allocation of the cost of suppressing fires originating on private lands in rural municipalities and local government districts;
- preparation of a paper on the methodology for evaluating the benefits of moose hunting;
- development of a model to evaluate the feasibility of elk ranching;
- analysis of the market for back country use in Provincial parks;
- development of a benefit-cost framework for resolving agricultural/forestry land allocation conflicts;
- review of the economic and recreational value of garter snakes.

A large number of special assignments were carried out, including the following:

- co-ordination of the reporting and analysis of branch performance and trend indicators, objectives and goals;
- provision of assistance to Wildlife and Fisheries Branches in the drafting of the Manitoba Habitat Heritage Act;
- representation on the Northern Development Agreement Program Advisory Committee;
- provision of project management for economic research projects carried out under the Canada-Manitoba Forest Renewal Agreement (including time and motion studies for various silviculture treatments and a survey of the province's primary wood-using industries);
- co-ordination of the department's response to issues raised by the Provincial Regulatory Review Task Force;
- development of options for enhancing revenue and reducing costs within the department, including proposals for changes in fees;
- review and assessment of claims against the department;
- assessment of the proposal to transfer the administration of cottage leases and permits in Provincial Parks from Lands Branch to Parks Branch;
- analysis of the financial results of the Wood Bison re-establishment project;
- provision of assistance in the department's negotiations with the Special Forebay Committee;
- evaluation of the department's library services;
- provision of assistance to Parks Branch in preparing tender documents for concessions within Parks;
- planning the 1986 Parks Visitor Survey.

Considerable effort was again devoted to planning and evaluation of the department fire management program. This included assistance in the development of a program information system and an analysis of the benefits of the fire prevention program. A review of the helitac system and the rate structure for use of the waterbombers was also undertaken, as was a review of the fire management resource priorities map.

Engineering and Construction

This branch provides engineering design, surveys, investigations, project management services and related support services to other branches within the department, as well as to municipalities, conservation districts and other government agencies; operates all flood control works during flood emergencies, coordinates all flood fighting activities and makes assessments of claims in respect to flood fighting costs and restoration works.

Technical Services

The Technical Services Division provided design and consulting engineering services for other branches in the department, as well as for other agencies within the government.

Plans and specifications were prepared for approximately 140 projects for the Water Resources, Parks, Forestry, Fisheries, Wildlife Branches and Conservation Districts, as well as numerous municipalities.

One of the largest projects carried out by the Division was the cold storage building for the Pineland Forest Nursery at Hadashville. Work was also done on the design for additional greenhouses and a shade frame building at both the Pineland Nursery and Clearwater Nursery.

Design work was started for the drainage network for the Pasquia Polder III project in preparation for tendering of the first contracts.

Preliminary design work was also completed on the Gimli flood diversion. All design of the flood protection works for towns within the Red River Valley were completed, while design work was started on the flood protection scheme for Ste. Rose.

Design of the Cooks Creek system neared completion.

Project Management Services

Interlake Region

Projects for the Water Resources Branch included regular inspection and maintenance of the Provincial Waterway System and the Lake Winnipeg dykes, and the operation and maintenance of the provincial dams in the region. This consisted of 1566 km of provincial waterways, 230 bridges, and 10 provincial dams.

The Assiniboine River Flood Control System was operated. Repairs were completed on the Portage Diversion Structure, including the ice guide boom.

The Provincial Waterway Program included projects on the Camper Drain and the Fish Line Drain.

Projects for the Parks Branch included maintenance, grading, and improvements to the drainage of the access road to Grindstone Point.

At the Gull Harbour Marina, plans were completed for the provision of services. The water supply and sewage pump-out were completed and the firefighting system was 95% completed. The boat ramps were reconstructed and material was bought to construct an auto and marine gas service. A fuel dock was started and most of the electrical service was completed. Also on Hecla Island, drainage was installed on the hotel access road.

Projects for the Forestry Branch included brushing the Kinwow Bay Forestry Road for nine miles and installing a culvert crossing.

Services provided to the Fisheries Branch included supplying of material for the construction of Mantagao Lake Control Dam. Also, a survey was done at Crossen Marsh to design a dyking system. Maintenance continued on the Fairford Fish Ladder.

Work for the Wildlife Branch included a large capital program shared by Ducks Unlimited and the Wildlife Branch for Oak Hammock Marsh. This included construction of 4 km of Wavey Creek Diversion, 3.2 km of diversion channel into cells 2 and 3, 5.6 km of the Dewar Drain, and a Diversion Control Structure on Wavey Creek.

Southwestern Region

A primary responsibility of this region was to provide technical support and engineering services to the Whitemud and Turtle Mountain Conservation Districts. This work involved construction and maintenance of waterways, culvert and bridge crossings, dams and other miscellaneous facilities which come under the jurisdiction of the Conservation Districts.

The highlight of this program included the third year of construction on the Big Grass River double dyke system near Waldersee and the construction of a number of small multi-purpose dams in the Boissevain area.

The region also performed routine maintenance and reconstruction works associated with 153 km of Provincial waterways, 15 Provincial bridges and 19 Provincial dams. A number of surveys were completed for various rural municipalities.

Eastern Region

Various surveys were conducted for the Cooks Creek Conservation District, local government districts, municipalities and various branches of the department.

Maintenance and construction of Provincial Waterways and flood control works were completed for the Water Resources Branch.

Four major drain crossings were replaced and the South Lateral PTH 52 highway crossing was completed. Excavation was completed on the Arnaud Drain, Angle Drain, the east side of the St. Adolphe Dyke and the west side of the Emerson Dyke. Work continued on the Libau Drain and Backman West Drain. Work related to the Pansy Drain was also undertaken.

Work commenced on the Cooks Creek Diversion. One gradient control structure was completed along with two highway crossings and one railway crossing, while one excavation contract was underway.

A number of projects were completed for the Parks Branch, including re-electrification of the Falcon Lake Trailer Site, gravel purchase for Wanipigow Lake and the crushing and re-gravelling of various roads in the Whiteshell Provincial Park. A channel was also excavated at Eleanor Lake.

A number of projects were completed for the Pineland Nursery at Hadashville, including four greenhouses, five shade frame structures, a tree improvement greenhouse, a major irrigation system and various minor projects.

A subdivision road at Block 6, Pinawa Bay was upgraded for the Crown Lands Branch.

The Red River Floodway outlet culverts were blocked for the Fisheries Branch to create a water storage area for the rearing of walleye fry. An area near Scanterbury was also filled with water for walleye rearing.

South Central Region

Work for the Water Resources Branch included operation and maintenance of the Provincial Waterways system within the region. Included are approximately 1,150 km of Provincial Waterways, 490 bridges, 40 gradient control structures and 19 dams. Also included are five Valley Town Dykes and the West Dyke of the Red River Floodway.

Under the joint Federal-Provincial General Development Agreement work was completed on Interceptors "B" and "C" of the Upper Bryson Drainage System, the Roberts Drain, McTavish Drain, and the Domain Drain laterals.

The Valley Town Dyke Upgrading Program started in 1984 was continued. Work included raising the dykes at Brunkild, Morris, St. Jean Baptiste and Letellier. Work at Rosenort included raising as well as relocating part of the dyking system. Work on the Valley Town Systems also included upgrading of the pumping systems, and installation of four major culvert installations through PTH 75, PR 201 and the CNR.

Under the Bridge Replacement Program culverts were purchased for Shannon Creek east of Section 5-4-4W, the Blackhurst Drain north of Section 31-6-1E and for the Crooked Lake Channel east of Sections 15 and 16-10-5W. Culverts were installed on the King Drain northeast of Section 4-8-1W and the Manness Drain north of Section 15-7-1E. Also a low level reinforced concrete crossing was constructed under contract on the Elm Creek Channel northeast of Section 31-9-2W.

Engineering Services were provided to the municipalities within the region. As well, the ongoing program of Red River Valley Designated Flood Area compliance checks was continued.

Western Region

Work undertaken on behalf of the Water Resources Branch consisted of the inspection, maintenance and operation of infrastructures in the Western Region consisting of approximately 675 km of designated Provincial Waterways, 22 flood and erosion control dams including Lake of the Prairies on the upper Assiniboine River flood control system and over 150 bridges over Provincial Waterways. Major activities included maintenance and operation of the Pasquia Pumping Stations at The Pas, cleanout of Mink Creek, re-decking the bridges over Edwards Creek, Mink Creek and the Fork River as well as replacement of two major bridges on the Wilson River near Dauphin. Major repair to the Rahls Island dykes at The Pas was necessary due to the extreme 1985 spring runoff. Capital projects included land acquisition on the Hamlin Drain, ongoing preliminary engineering and land acquisition on the Polder III land reclamation project and preliminary engineering associated with the Ste. Rose du Lac flood protection project. Major surveys were conducted on the North Duck River for a dam feasibility report and in the Assiniboine River Valley below Shellmouth associated with interprovincial drainage investigations.

Work of a preliminary engineering nature for Parks Branch consisted of surveys and designs for a new lagoon located at Campers Cove for the Clearwater Lake Provincial Park and a new water system for the campground at Wekusko Falls. Material was purchased to upgrade the sewage outlet into the Bakers Narrows Lagoon and the government dock at Channing was removed due to age and unsafe condition. The Guy Hill Residential School site in Clearwater Provincial Park was restored and a well was installed at the Broken Pipe Wayside. Major capital work consisted of upgrading the water supply system at Asessippi Provincial Recreation Park, construction of

an improved highway access to Rainbow Beach Provincial Recreation Park, and the awarding of a contract for the construction of an eight stall shower building at Asessippi Provincial Park.

Work for the Forestry Branch at Clearwater Provincial Forest Nursery consisted of the award of an additional two contracts for the construction of eight greenhouses and two service buildings. Contracts were managed at the Clearwater Nursery for a Seedline-Multi-purpose building and a contract was completed for the construction of seven greenhouses and one service building. Production line seedline equipment was installed to facilitate planting of the 1985-86 crop at Clearwater. Additions to the servicing infrastructure consisted of completing the water system and additional power service to the site. A standby generating facility was completed and additional shade frame buildings were constructed.

Engineering services were provided to the Alonsa and Turtle River Conservation Districts. Work consisted of general channel maintenance and repairs to various bridge structures and crossings in the area. Miscellaneous crossing replacement was a significant element in the districts program. Maintenance projects undertaken for the Turtle River Conservation District consisted of cleanouts of the Wilson Creek and Clarke Drains and completion of cleanout contracts on the Oake and Law Drains. Major reconstruction was undertaken on the Hansen Creek, while reconstruction of the North Leifer Drain was completed for the Alonsa Conservation District.

Work undertaken for the Fisheries Branch consisted of the design and construction of fifteen low head weirs to enhance the pickerel spawning habitat on Mink Creek in the Dauphin area. Miscellaneous preliminary surveys and engineering designs were also completed for several Duck Mountain water control structures to prevent unwelcome migration of predator fish.

Fisheries

This branch develops and implements fisheries management programs to provide the greatest benefit to Manitobans by maintaining or enhancing fish populations in the province; monitoring the effects of harvest and habitat alterations on fish populations; operating the provincial fish hatcheries to increase and/or sustain fish resources; and allocating the fishery resource to ensure the best return to Manitobans. The branch also administers the Northern Fishermen's Freight Assistance Program for commercial fishermen.

Bait Fishing

During the 1985-86 season, 40 bait fish licences covering 279 bait fish blocks were issued. Approximately 88,000 kilograms of frozen and packaged bait fish were processed by the bait fishermen.

In addition, five dealers for live bait were under licence and approximately 27,000 live bait fish were sold. The moratorium on expansion of the live bait fish industry was continued and no new live bait fishing operations or outlets were licenced. The use of live bait fish is considered to be a threat to fish stocks resulting from the introduction and transfer of exotic and undesirable species.

Commercial Fishing

The "Quota Entitlement" system became fully operational on Lake Winnipeg in the spring of 1986, following an initial introduction during the 1985 - 86 winter fishing season. Replacing the former "Point System," the Quota Entitlement system promotes economic rationalization of individual fishing operations and allows retiring fishermen to recover their equity. The introduction of the new system followed extensive consultations with fishermen and the Lake Winnipeg Commercial Fisheries Management Advisory Board members and a successful pilot project in the Matheson Island area. Referendums were held in each of the community licencing areas, with 90% of the fishermen in favour of the Quota Entitlement system.

A report entitled "A Preliminary Appraisal of Quota Entitlement Values" was completed. This analysis provided a framework to appraise quota entitlement values and, from within that framework, present a range of dollar values that will serve as initial guidelines for the disbursement of quota entitlement loans by Manitoba Agricultural Credit Corporation.

The Lake Winnipeg Licence Review Board composed of commercial fishermen and departmental representatives met prior to each fishing season and heard 49 appeals for licences. Most licence transfer requests were deferred until a final decision was reached on the implementation of the proposed Quota Entitlement system.

The Northern Fishermen's Freight Assistance Program (NFFA) continued to assist commercial fishing operations in the north. Payments amounting to $277,240 were paid to 604 commercial fishermen for the 1985 summer season. Payments for the winter season of 1985 - 86 to fishermen amounted to $49,331.

Regular meetings continued with the Lake Winnipeg Commercial Fisheries Management Advisory Board, the Lake Winnipegosis Commercial Operators and Fishermen's Association and the Lake Manitoba Commercial Fishermen's Association. These organizations act in an advisory capacity and enable commercial fishermen to contribute to the management of their fisheries.

Fisheries Branch held a series of meetings with commercial fishermen and other interested residents to discuss possible management options for the Lake Winnipegosis fishery. This fishery has been declining both biologically and economically for over 20 years. It is characterized by too many fishermen, and too few fish. The majority of fishermen favor a temporary closure of the fall fishing season for several years to allow pickerel stocks to rebuild. In their view; however, some sort of compensation or alternative employment is necessary during the closure.

The Manitoba Fishery Regulations were re-written by Fisheries Branch and submitted to Ottawa for enactment. Changes were made to improve clarity and to introduce new management controls. An amendment to the Manitoba Fisheries Act was drafted to allow Manitoba to licence fishermen under provincial legislation.

Lake Manitoba is traditionally a winter 3 3/4" gill net pickerel and sauger fishery, but the use of 3" mesh gill nets was allowed during January and February for harvesting perch in the south basin as a test program. Approximately 87,000 kg of additional perch were harvested generating $166,000 in revenue for fishermen. The results, however, indicated that perch accounted for only 37% of the catch, the remainder being walleye. Results of this perch fishery are being studied and discussions will be held with fishermen before a decision is made to continue.

Fishermen Employed in Manitoba's Commercial Fishery, 1984-1985

	Northern Lakes	Lake Winnipeg	Lake Manitoba	Lake Winnipegosis	Other Lakes	Overall
Summer						
Licence Holders	498	802	51	48	90	1,433
Hired Men or Helpers	138	285	3	118	1	537
TOTAL	636	1,087	54	166	91	1,970
Winter						
Licence Holders	212	337	621	133	276	1,570
Hired Men or Helpers	66	128	570	152	146	1,052
TOTAL	278	465	1,191	285	422	2,622
Annual						
Licence Holders	558	866	627	143	315	2,436
Hired Men or Helpers	167	304	573	208	147	1,375
TOTAL	725	1,170	1,200	351	462	3,811

Note:

Those who fish in more than one area or season or who fish both as hired men and licence holders, are counted only once in the appropriate "TOTAL" column. Where hired man and licence holder duplication occurs, the individual is counted as a licence holder. Therefore, the table does not total horizontally or vertically.

This table includes 54 fishermen from Lake Winnipeg who hold only retirement licences and 50 fishermen from Northern lakes who hold only general permits

Commercial fishing statistics for the 1985-86 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Commercial Fishing Production (Round Weights kg), by Area and Total Value by Species, 1984-1985

	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis		Other Lakes[1]		Total Production			Total Value $		
Species	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Total	Summer	Winter	Total
Whitefish	899,300	121,650	1,029,250	598,550		43,000	20,300	49,400	119,900	402,050	2,068,750	1,214,650	3,283,400	2,007,800	1,567,500	3,575,300
Roe[3]	(600)										(600)		(600)	(1,750)		(1,750)
Pickerel	652,050	70,350	1,732,950	214,300		500,250	288,100	27,700	308,500	115,600	2,981,600	928,200	3,909,800	7,274,000	2,580,550	9,854,550
Sauger	50	250	1,115,200	831,450		130,300	900	4,500	1,200	1,100	1,117,350	967,600	2,084,950	1,443,350	1,407,450	2,850,800
Pike	552,450	134,300	176,650	45,250		184,100	112,150	456,250	206,100	273,550	1,047,350	1,093,450	2,140,800	710,750	835,800	1,546,550
Tullibee	49,900	31,650	50					Tr[2]	32,050	4,400	82,000	36,050	118,050	61,450	28,000	89,450
Trout	12,400										12,400		12,400	17,000		17,000
Mullet	10,750	17,950	51,900	17,850		494,150	359,400	520,900	7,800	68,750	429,850	1,119,600	1,549,450	80,150	233,400	313,550
Goldeye	4,100	100	50	150		Tr[2]	13,200	14,250	100	1,300	17,450	15,800	33,250	14,250	14,550	28,800
Perch	300	550	54,000	26,100		126,000	100	5,250	400	2,200	54,800	160,100	214,900	139,100	440,950	580,050
Carp			39,700	9,050	194,750	78,500	17,000	50,300		600	251,450	138,450	389,900	52,950	23,550	76,500
Sturgeon	5,750		50								5,800		5,800	47,950		47,950
Bass			2,350	2,400							2,350	2,400	4,750	1,050	1,250	2,300
Catfish			2,550	300							2,550	300	2,850	1,200	150	1,350
TOTAL	2,187,050	376,800	4,204,700	1,745,400	194,750	1,556,300	811,150	1,128,550	676,050	869,550	8,073,700	5,676,600	13,750,300	11,851,000	7,133,150	18,984,150

[1] *Includes Buffalo, Cedar, Dauphin, Dog, Pelican, Red Deer, St. Martin, Steeprock, Swan, Waterhen, William Lakes*
[2] *Trace (small amount)*
[3] *Figures for roe are not included in table totals*

NOTE: *Total value includes both initial value and final payment.*
Commercial fishing statistics for the 1985-86 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Commercial Fishing Production (Round kg), Total Value and Employment (Licenced Fishermen Plus Hired Men) 1976-77 to 1984-85

	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis		Other Lakes		Manitoba Total		Total
Year	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	Employment
1976-77	3,087,550	2,094,250	4,497,500	5,226,850	1,059,850	849,850	823,650	444,700	1,228,000	888,350	10,696,550	9,504,000	2,953
1977-78	3,418,800	2,395,000	4,764,950	5,175,650	1,726,150	566,850	2,013,900	821,700	1,286,050	828,550	13,209,850	9,787,750	3,170
1978-79	2,915,500	2,629,000	4,949,100	5,765,300	1,535,500	713,350	2,462,000	1,022,050	1,577,650	1,425,900	13,439,750	11,555,600	3,161
1979-80	3,679,500	3,261,500	5,258,100	7,642,850	2,921,450	2,790,950	2,926,000	1,337,750	1,846,400	1,919,450	16,631,450	16,952,500	3,213
1980-81	3,474,300	3,576,200	5,652,800	9,066,800	2,330,400	2,270,950	3,172,650	1,375,200	1,816,100	2,346,750	16,446,250	18,635,900	3,659
1981-82	2,888,150	3,344,350	5,929,100	9,935,800	2,637,850	2,462,900	1,873,250	972,450	1,320,150	1,802,650	14,648,500	18,518,150	3,767
1982-83	2,732,850	2,252,500	5,446,900	6,963,800	3,290,800	1,825,900	2,550,350	1,096,900	1,446,900	1,235,750	15,467,800	13,374,850	3,826
1983-84	2,167,250	2,431,650	5,502,100	8,871,650	2,457,500	2,224,700	1,859,550	1,266,900	1,218,950	1,582,650	13,205,350	16,377,550	3,737
1984-85	2,563,850	3,350,000	5,950,100	9,870,550	1,751,050	2,260,900	1,939,700	1,513,650	1,545,600	1,989,050	13,750,300	18,984,150	3,811

NOTE: *Total Value includes both Initial Value and Final Payment.*

Sport Fishing

Sport fisheries programs involving recreational angling and the fishing lodge industry were conducted throughout the province. Resource conservation and enhancement continued to be the major focus of management and development programs.

In Whiteshell Provincial Park a number of new stocked trout fisheries were developed in conjunction with the Whiteshell Management Plan. These included Bear, Tugby, Giant, Gillespie and Wasp lakes in the backcountry and extensive recreation zones of the park.

With the co-operation of local municipalities and other user groups, aeration systems were installed in several reservoirs and lakes with sport fisheries potential in southwestern Manitoba. Subsequent stockings of trout have been successful and sport fisheries have developed on the lakes, which include Mary Jane, Elgin and Goudney reservoirs, as well as Bower Lake and East Goose Lake.

Glad Lake in Duck Mountain Provincial Park was stocked with Arctic char after an extensive netting program to remove pike and other predators from the lake. Cutthroat trout were also stocked in Duck Mountain, further diversifying sport fishing opportunities in this area.

Sport fishing by tourists is an important economic activity throughout the province, particularly for northern communities like The Pas, Flin Flon, Lynn Lake and Thompson.

Several new lodges and numerous outcamps and boat caches were licenced this past year. The maintenance of high quality angling was a major management objective, well supported by tourist operators. They have voluntarily adopted or requested reduced limits, trophy management and barbless hook regulations.

A comprehensive creel census to determine harvest and angling effort was conducted on Athapapuskow Lake as part of a resource management plan for the lake.

A national sport fishing survey was conducted for the 1985 angling season in co-operation with the federal government. Similar surveys were conducted in 1975 and 1980. Results of the 1985 survey will provide status and trend information on angler effort, harvest and expenditures.

A new type of angling licence was introduced in the spring of 1985. The former three-day non-resident licence was replaced by a low cost non-resident conservation licence with reduced limits of fish. This innovation appeared to be well accepted and encouraged the conservation of the fisheries resource.

Angling Licence Sales and Revenue, 1976-77 to 1985-86

Year	Resident Licences			Non-Resident Conservation Licences			Non-Resident Licences			Total Licences	
	Number	Fee	Revenue	Number	Fee	Revenue	Number	Fee	Revenue	Number	Revenue
1976-77	150,020	3.30	458,213.85	9,845	5.50	51,957.50	29,475	11.00	317,603.80	189,340	827,775.15
1977-78	148,289	3.30	452,849.70	9,175	5.50	48,401.25	28,363	11.00	305,800.50	185,827	807,051.45
1978-79	156,553	3.30	477,979.15	10,918	5.50	57,569.7	29,929	11.00	322,571.00	197,400	858,119.90
1979-80	155,790	3.30	475,621.75	9,590	5.50	50,534.25	31,029	11.00	334,312.75	196,409	860,468.75
1980-81	159,584	3.30	487,384.20	8,658	5.50	45,612.50	32,353	11.00	348,565.25	200,595	881,561.95
1981-82	159,233	3.30	486,394.90	8,439	5.50	44,369.50	32,037	11.00	344,723.50	199,709	875,487.90
1982-83	164,384	5.00	741,087.50	3,777	12.00	43,502.50	28,561	20.00	557,353.50	196,722	1,341,943.50
1983-84	157,724	5.00	710,986.50	3,592	12.00	41,346.50	29,852	20.00	582,435.00	191,168	1,334,768.00
1984-85	154,489	5.00	696,541.50	3,443	12.00	39,645.00	30,268	20.00	590,545.50	188,200	1,326,732.00
1985-86	154,602	6.00	851,476.00	10,325	15.00	149,824.00	22,239	30.00	656,289.00	187,166	1,657,589.00

NOTE: *Revenue figures are net (less vendor's commission).*
Non-Resident 3 day Licences were discontinued in 1985-86.
Non-Resident Conservation Licences were introduced in 1985-86.

Fisheries Enhancement

A monitoring program to determine the impact of hydro-electric development on fisheries resources was initiated on the Churchill and Nelson River systems. Initial findings indicated significant changes in abundance and species composition of the fish communities since 1976 when the Churchill system was diverted for hydro-electric generation. The study is expected to continue for four more years.

In accordance with the Canada-Manitoba Mercury Monitoring Agreement of 1983, fish were netted from twelve lakes in the Thompson area, primarily along or associated with the Churchill River Diversion, to determine the level of mercury contamination. Elevated mercury levels were recorded in pike, walleye and sauger from flooded lakes. Consequently, warnings will be posted with respect to consumption of these species. The degree of mercury contamination appears to be related to the extent of backshore flooding. There has been no significant decrease in mercury levels in fish from those lakes since the 1976 diversion.

A report was completed on changes in the Lake Winnipeg fish stocks during the 1976-83 period. A model predicting pickerel and sauger year-class abundance as a function of abundance of spawning females, spring flows and water warming rates, was developed. Optimal harvest rates for walleye and sauger were recommended, based upon this model.

A study was initiated in 12 lakes in Duck Mountain Provincial Park to determine sustainable yield from perch and bass stocks and develop new recreational fishing opportunities within the park.

The first year of a two year study on brook trout and other fish resources in the Limestone area of the Nelson River was initiated to determine the effects of the Limestone hydro-electric development. It was also intended to identify protection, mitigation and enhancement measures for conserving fish stocks in the lower Nelson River.

A number of projects were conducted through the Manitoba Habitat Heritage Program to improve fisheries management for anglers and commercial fishermen. The projects completed involved lake aeration and water level control to prevent fish winterkill, artificial reef construction to provide habitat for forage fish, reservoir construction for trout ponds, rehabilitation of man-made wild rice ponds for walleye rearing, dredging to prevent fish stranding and to create trout habitat, netting to reduce predator populations, fencing to exclude livestock from trout streams and outlet controls on small, fishless lakes for walleye rearing.

Commercial fishing waters were stocked with 30,000,000 walleye fry of which approximately 21,000,000 walleye fry were stocked in rearing ponds for later release to fishing waters as fingerlings. Some 21,000,000 walleye fry were distributed to sport fishing lakes. Over 125 sport fishing waters were stocked with a variety of species. In addition 600,000 lake trout eggs were sold or exchanged for eggs of other fish species.

Numbers of Fish Distributed to Sportfishing Waters From Fish Hatcheries 1985-86

	eggs	fry	fingerlings	yearlings	2 years and adults
walleye		21,800,000			
northern pike		198,000			4,330
muskellunge		90,000			
perch					51,000
smallmouth bass			1,000		
largemouth bass			30,000		
rainbow trout				113,000	41,850
brook trout				21,000	500
brown trout					4,630
lake trout	907,000			236,000	
splake				30,000	
cutthroat trout					15,260
Arctic char			17,000		

Forestry

This branch administers ***The Forest Act*** *and* ***Dutch Elm Disease Act****, develops and implements commercial harvesting plans for Manitoba's forests; administers timber-cutting licensing and measurement; conducts tree improvement and forest genetics studies; plans and co-ordinates silviculture, reforestation and timber management programs; maintains a forest inventory; and develops and implements forest protection programs including Dutch elm disease control programs.*

Administration

The Administration section of the Forestry Branch continued to provide support to the four sections of the Branch at the head office level. Administrative assistance was also provided to five regional offices, three district offices and two forest nurseries.

In 1985-86 the Administration section maintained financial control and accountability for the provincial share of the Canada/Manitoba Forest Renewal Agreement and the Manitoba Jobs Fund Sectoral Projects in Forestry.

Forest Inventory

Forest Inventory reports summarizing forest conditions and wood volumes available for annual harvest were completed for several Forest Management Units. They include: Forest Management Unit 06 (Deloraine) in the Aspen/Parkland Forest Section; Forest Management Unit 13 (Duck Mountain) in the Mountain Forest Section and Forest Management Units 53 to 57 inclusive in the Saskatchewan River Forest Section.

Forest Survey crews collected the forest measurement data required for the complete revision of the stand/stock volume tables for the Pineland Forest Section and a portion of the Highrock Forest Section.

The Forestry Geographic Information System "FORIST" provided under the Canada/Manitoba Forest Renewal Agreement, began operation in a twenty township (1,900 km^2) training and test area in the Pineland Forest Section in October of 1985. The purpose of the system is to allow modification and rapid evaluation of the impact of change on Manitoba's forest resources. The task of entering the 4,300 forest cover map sheets and inter-connected forest cover descriptions will begin when the test area activities have been completed.

The five year summary of Manitoba's forest resource base was completed and will form a major component of the first five year review of Manitoba's forest resources to be made to the Legislature in 1986.

Manitoba's Forest Sections contain over 14 million hectares of productive forest land supporting a merchantable wood volume of some 745 million cubic metres of all species in all ownerships.

Forest Inventory Projects 1985-86

Activity	Area	
	Square kms	Square Miles
Aerial Photography	21,180	13,220
Forest Cover Mapping	19,370	12,040
Air Photo Interpretation	19,370	12,040
Forest Surveys	28,540	17,730
Area Compilation	14,500	9,010
Area and Volume Statistics	14,500	9,010
Forest Inventory Reports	31,740	19,720
Township Air Photo Mosaics	59,780	37,150

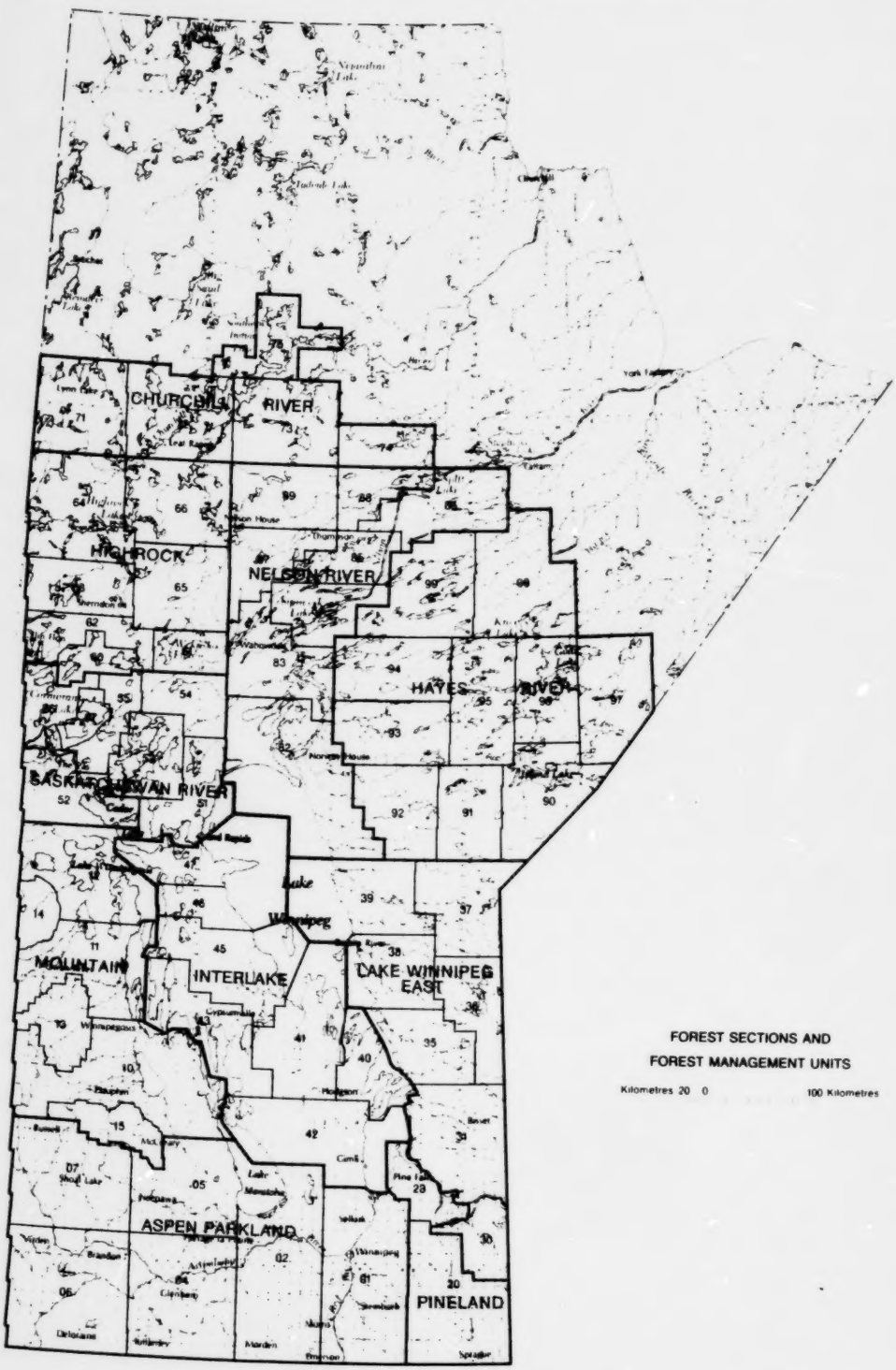
Timber Management and Development

The recovery of the forest products industry slowed somewhat during the 1985-86 fiscal year. With the continued weak Canadian dollar, and the declining interest and mortgage rates, little movement occurred in reported prices for paper or pulp. The lumber sector continued to be strong, however, with an overall gain in prices posted.

The deferred newsprint price increase from $535 per tonne to $570 never materialized, and some discounting to just over $400 per tonne occurred throughout the year in order to maintain sales levels. Market pulps remained in the $425 to $450 per tonne range.

Lumber prices were weak until late February and March. United States prices, at a low in the $130 per MFBM range in the spring of 1985, moved up to the $150 range for most of the summer, fall and winter, jumping to the $200 level by the end of March 1986. This was attributed to the lowest mortgage rates in seven years. This price surge may not continue as there is still excess production capacity in the North American softwood lumber market.

Composite boards (e.g. waferboard) continued to increase their share of the market as a result of the increased home building rate. Interest was expressed in a potential wood supply that could support a plant for Manitoba.


CHURCHILL RIVER
HIGH ROCK
NELSON RIVER
HAYES RIVER
SASKATCHEWAN RIVER
Lake Winnipeg
MOUNTAIN
INTERLAKE
LAKE WINNIPEG EAST
ASPEN PARKLAND
PINELAND
FOREST SECTIONS AND
FOREST MANAGEMENT UNITS
Kilometres 20 0 100 Kilometres

The major modifications to the sawmill and pulp mill at Manfor were completed this year. The most significant changes were in the pulp mill to produce improved quality kraft paper and the addition of a stud line in the lumber mill.

The United States softwood lumber industry continued pressing for action to curtail Canadian softwood lumber exports to the United States. By fiscal year end, Canada had captured approximately one third of the United States market. A series of meetings between Canada and the United States took place in order to resolve American concerns.

Progress continued in developing two new proposed provincial forests. These are the Tommy Prince joint provincial forest/wildlife management area, located in the central Interlake, and the Swan-Pelican provincial forest, located in western Manitoba.

Timber Management

The 1985-86 volume of timber harvested from provincial Crown lands totalled 1,488,235 m^3 of softwood and 200,662 m^3 of hardwood, for a grand total of 1,688,897 m^3. This is a 0.95% increase over the 1,673,031 m^2 harvested during the 1984-85 fiscal year. Production of lumber, railway ties, utility poles, posts and fuelwood increased, while slight slippages occured in mine timber, Christmas trees, pulpwood and round timber.

Forestry revenue exceeded three million dollars in 1985-86. This represents an increase of approximately 13% from the last fiscal year. The large increase was due to nearly $200,000 in fire suppression cost recovery (almost doubling the previous year's figure), along with a significant increase in timber dues paid by the two largest licence holders (Manfor and Abitibi Price Inc.). Timber Permit revenues were also up by $31,000, though Timber Sale revenue dropped just over $11,000.

A revised timber dues schedule came into effect in October 1985. The dues concession for jack pine pulpwood was removed, while the rate for higher value hardwood species of birch, ash and oak was made consistent with the softwood rate. Essentially dues for Crown wood in Manitoba are now collected at a uniform rate, with the exception of aspen and poplar.

Timber permits issued this fiscal year totalled 6,944, an increase of 37 permits from the previous year. This slight change was attributed to the relatively stable demand for forest products in the province.

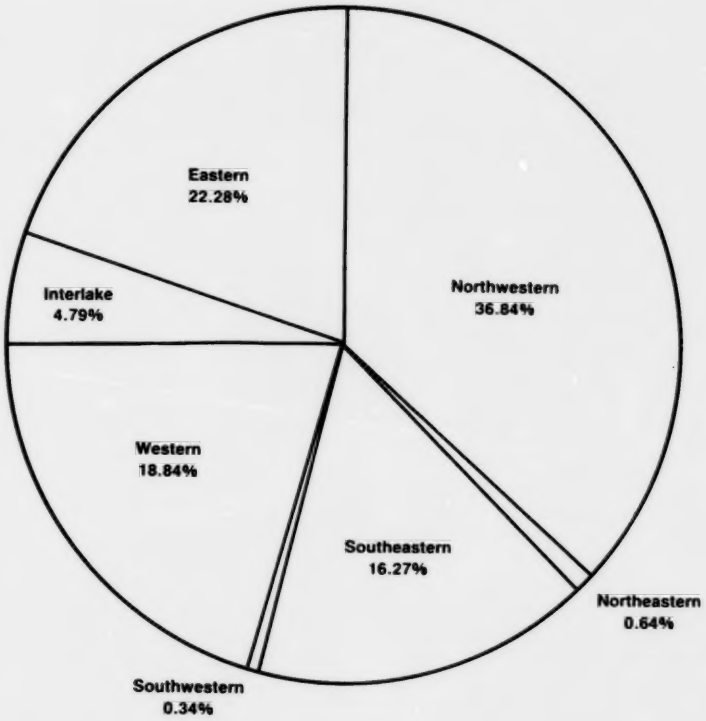
Nineteen Timber Sale Quota assignments were made during the 1985-86 fiscal year, decreasing the total to 226 Timber Sale Quotas in the province. Timber Sale Quotas are made to companies or individuals as part of the Timber Allocation process in Manitoba. An Assignment represents a portion of the total available annual cut in a Forest Management Unit. Two hundred and ninety-seven Timber Permit Quotas were cancelled for under utilization, and nine were assigned. This left only 37 Timber Permit Quotas in the province.

A metric timber scaling licence certification course was held at Swan River in May of 1985. Ten of the twelve candidates successfully completed the course of intensive field and classroom instruction.

Timber Cut on Crown land, 1985-86

Product	Species	Round Wood (cubic metres)	Percentage
Lumber	Spruce, Pine, Fir Tamarack, Cedar, Poplar, Birch and other hardwoods	474,826	28.11
Pulpwood	Spruce, Pine, Fir Poplar	1,065,361	63.08
Railway Ties	Pine	5,043	0.30
Line Poles	Cedar, Pine, Tamarack, Spruce	427	0.02
Fence Posts	Cedar, Pine, Tamarack, Poplar, Spruce, Oak	17,075	1.01
Round Timber	Spruce, Pine, Tamarack	13,111	0.78
Mining Timber	Pine, Spruce	2,493	0.15
Fuelwood	Birch, Poplar, Pine Spruce and other species	110,561	6.55
	TOTAL 1985-86	1,688,897	100.00
	TOTAL 1984-85	1,673,031	

Percentage of Timber Produced Within Departmental Regions 1985-86



Record of Timber Scaled or Manufactured, 1985-86

	LUMBER (CUBIC METRES)								PULPWOOD (CUBIC METRES)				PIECE PRODUCTS (CUBIC METRES)				FUELWOOD (CUBIC METRES)						CUBIC METRES	
																	GREEN							
	Metres Mine Timber	Christmas Trees Pieces	Spruce	Balsam	Jack Pine	Other Soft Woods	Poplar	Other Hard Woods	Spruce	Balsam	Jack Pine	Poplar	Railway Ties	White Cedar Poles	Jack Pine Poles	Posts	Spruce	Jack Pine	Poplar	Other Hardwoods	Dry	Slabs And Tops	Round Timber	Totals
SUMMARY BY REGIONS																								
Northeastern		90	674	150					40		250					11	1 632	2 918	1 133	604	3 281		166	20 857
Northwestern	2 462	85	122 974		83 119		83		242 380		161 318	470	308			106	406	428	1 315	2 080	4 615	10	89	622 163
Southeastern		6 546	2 973	23	39 706	2 222	48 171	2 035	55 633	1 751	53 222	32 538	3 119	7	57	4 017	174	2 310	9 372	7 201	4 165	1 869	4 301	274 866
Southwestern		60				5	50	25								111		534	4 307	290	362		77	5 761
Eastern	31	9 739	3 042	75	6 842	431	4 326	987	267 392	618	69 942	2 890	1 212		41	725	196	1 391	5 652	3 627	6 122	110	585	376 237
Interlake		86	10 969	70	5 705	3	1 105	58	37 603	109	10 108		214			2 088	73	410	2 344	1 588	7 129	64	1 257	80 897
Western		1 289	80 217	253	29 325	32	27 524	1 652	106 462		22 173	462	190		322	10 017	425	710	10 103	7 999	13 544	70	6 636	318 116
TOTALS	2 493	17 895	220 849	571	164 697	2 693	81 259	4 757	709 510	2 478	317 013	36 360	5 043	7	420	17 075	2 906	8 699	34 226	23 389	39 218	2 123	13 111	1 688 897
SUMMARY BY STATUS OF LAND																								
Prov Forests																								
Agassiz		1 211	193		1 012	205	1 412		7 512		1 179	17 132	135		40	122	52	120	2 747	738	1 563	103	532	34 797
Belair			75		450				826		4 239					35	4	74	517	376	98		22	6 716
Brightstone																	2	15	622	500	548			1 687
Cat Hills		450			1 844				158		1 622										10			3 634
Cormorant			8		938		48											43	71	113	469		12	1 702
Duck Mountain		738	43 427	15	13 597	32	26 812	1 652	52 933		4 586		190		322	2 006	32	121	3 479	3 016	1 476	70	2 087	155 853
NW Angle		185			28	50	18 394	698	10 425	476	5					408		6	623	3 573	154	18	241	35 099
Porcupine			21 055		14 422		403		27 180		17 331	462				7 323			762	2 494	11 308		3 583	106 323
Sandilands		4 332	2 108	12	25 611	294	17 310	237	32 063	425	31 149	15 569	1 333	7		3 044	169	1 606	4 363	2 829	1 819	1 615	2 727	144 290
Spruce Woods																		439	245		45			729
Turtle Mountain							25	25											45	100	93			288
Whiteshell		44	647		10 736	1 187	7 008	919	5 565	250	18 260	50	1 577		13	6	3	308	727	420	295		37	48 008
TOTAL PROV FOR OTHER PROV LANDS	2 493	6 960 10 935	67 513 153 336	27 544	68 638 96 059	1 768 925	71 412 9 847	3 531 1 226	136 662 572 848	1 151 1 327	78 371 238 642	33 213 3 147	3 235 1 808	7	375 45	12 944 4 131	262 2 644	2 732 5 967	14 201 20 025	14 159 9 230	17 878 21 340	1 806 317	9 241 3 870	539 126 1 149 771
TOTALS	2 493	17 895	220 849	571	164 697	2 693	81 259	4 757	709 510	2 478	317 013	36 360	5 043	7	420	17 075	2 906	8 699	34 226	23 389	39 218	2 123	13 111	1 688 897
SUMMARY BY METHOD OF DISPOSAL																								
Permits	31	5 185	5 826	241	3 636	1 800	15 527	321	19 797	1 969	11 467	26 572		7	98	8 118	2 306	7 548	32 108	17 096	30 567	2 013	7 704	194 752
Sales	2 462	12 705	101 958	330	82 909	691	61 644	3 557	244 706	310	82 724	9 788	3 831		322	8 957	600	1 003	2 013	5 478	8 644	110	5 351	627 348
Berths			113 065		78 076	235	4 088	879	444 808		222 699		1 212					148	105	777			56	866 148
Seizures		5			76	7			199	199	123									38	7			649
85-86 TOTALS	2 493	17 895	220 849	571	164 697 474 826	2 693	81 259	4 757	709 510	2 478 1 065 361	317 013	36 360	5 043	7	420	17 075	2 906	8 699	34 226	23 389 110 561	39 218	2 123	13 111	1 688 897
84-85 TOTALS	4 253	21 956	164 969	846	83 604 330 228	2 549	70 900	7 360	782 646	4 228 1 201 970	398 766	16 330	2 862		57	7 263	2 891	9 176	26 931	31 382 103 593	31 043	2 170	22 805	1 673 031

Annual Forest Production by Forest Product 1981-82 to 1985-86

Year	Pulpwood		Lumber		Fuelwood		Other		Total	
	Volume (m^3)	%	Volume (m^3)	%	Volume (m^3)	%	Volume (m^3)	%	Volume (m^3)	%
1981/82	1,100,921	61.8	535,034	30.0	88,369	5.0	57,754	3.2	1,782,078	100%
1982/83	787,879	53.3	518,062	35.1	111,555	7.5	60,596	4.1	1,478,092	100%
1983/84	837,756	55.8	509,476	34.0	102,474	6.8	50,626	3.4	1,500,332	100%
1984/85	1,201,970	71.9	330,228	19.7	103,593	6.2	37,240	2.2	1,673,031	100%
1985/86	1,065,361	63.1	474,826	28.1	110,561	6.5	38,149	2.3	1,688,897	100%

Permits, Licences and Quotas on Crown Lands (Including Provincial Forests) 1984-85 and 1985-86

	1984-85	1985-86
Timber Dealers and Sawmill Licences		
Timber Dealers	28	53
Sawmill Licences	124	109
Permits and Licences Covering Timber Cutting Rights		
PERMITS	6,907	6,944
TIMBER SALE AGREEMENTS		
Awarded	23	194
Previously Awarded	232	58
TOTAL	255	252
Timber Seizures Recorded	17	14
Timber Allocations in Force on March 31st		
Timber Sales	227	221
Timber Permits	340	36
TOTAL	567	257
Forestry Revenue (Crown Charges)	$2,708,558.80	$3,068,196.98

Silviculture

In 1985-86 several major technical steps were taken to maintain the silviculture program in Manitoba and to provide new thrusts in forest renewal and stand improvement.

The upgrading of the bareroot program at the Pineland Nursery was accelerated to meet newly identified needs for seedling production. New programs were identified for implementation in 1986.

The new tree improvement facility located on the Pineland Provincial Forest Nursery site near Hadashville neared completion. It is intended to develop improved nursery stock, specialized seed orchards, as well as specialized operational research programs to improve the seedling quality and production capability within the two provincial nurseries.

At the end of 1985, as part of the Canada-Manitoba Forest Renewal Agreement, Forestry Branch reopened the Birds Hill Nursery in co-operation with Parks Branch. This nursery provided the opportunity to develop on-site specialization seed orchards, and space for testing tree improvement programs. Specialty stock for both wood- lot and Parks programs will continue to be produced at this facility.

The total area treated by some form of silviculture activity in Manitoba was 14,569 hectares, representing a 27% increase from 1984-85. Of this total, 43% of the programs were carried out by industry, with the remainder carried out by the Forestry Branch.

Approximately 10 million seedlings were planted in 1985, for the most part under tendered contract. When both provincial nurseries reach maximum production, this figure should be doubled. In 1989 when both provincial nurseries reach full production levels, there will still be a need for an additional 1.5 million seedlings. These will be acquired from non-governmental sources.

In 1985-86, 1,960 hectares were mechanically thinned or released under contract to local communities, allowing this existing growing stock the opportunity to attain maximum production in a shorter period of time. These programs are carried out under tendered contracts obtained by local communities.

Tree Improvement and Forest Genetics

In the past year, the production of genetically improved seed was accelerated through the use of plant regulator hormones in seed orchards and the clone bank. Additional sites were prepared for seed orchard establishment. Other activities included the monitoring of growth performances of "plus" trees to maintain genetic diversity in the seed orchard population.

A new project was implemented to locate superior stands of black spruce for the establishment of a seed orchard. One hundred and nine stands were identified.

The joint jack pine tree improvement program under the Canada/Manitoba Forest Renewal Agreement was advanced through the selection of thirty-four stands in the Northwestern Forest Region. These stands will be used to create a jack pine seed orchard.

Clearwater Provincial Forest Nursery

In 1985, Clearwater operated 12 greenhouses. Four houses produced two crops and eight houses produced a single crop. The greenhouses operated in January to September and produced a total of 3.44 million seedlings over this period. Based on the fiscal year, 4.07 million seedlings were produced. Clearwater supplied 2.016 million seedlings for 1985 planting.

Pineland Provincial Forest Nursery

Seedling lifting at Pineland Provincial Forest Nursery began April 15 and finished May 8. A total of 4.5 million seedlings were harvested and packed for shipping. Two new Grayco harvesters were used quite successfully along with the two old harvesters for lifting bareroot seedlings. In addition to the three nursery reefer vans, an additional two vans were rented for cold storage of seedlings.

The nursery shipped 3.4 million containerized seedlings in 1985. A total of 2.1 million seedlings overwintered at the nursery. Two crops of greenhouse seedlings were produced in ten greenhouses with the first crop for 1986 seeded in January, 1986.

The nursery processed 257 hectolitres of cones in 1985 and extracted approximately 125 kg of seed. All the seed was graded with the new gravity separator, and stored for future use.

The Manitoba Forestry Association provided tours of the Pineland nursery for 1,915 students and 112 casual visitors.

1985-86 Forest Renewal Activities

	Province of Manitoba Regional Program	Abitibi-Price	Manfor
Trees Planted			
— Hand	5,008,815	2,444,000	1,990,581
— Machine	455,125	Nil	Nil
Hectares Planted			
— Hand	1,939	1,021	1,018
Hectares Site Prepared	2,966	266	1,734
Hectares Scarified for Natural Regeneration	521	Nil	1,182
Hectares Mechanically Thinned or Released	1,581	176	203
Hectares Herbicided	382	604	54
Hectares Treated for Insect or Disease Infestation	720	Nil	Nil
Hectolitres of Cones Collected	213	61	17

Forest Protection and Dutch Elm Disease

Jack Pine Budworm

The jack pine budworm infestation intensified and expanded in Manitoba in 1985. The Interlake and Eastern regions had a considerable increase in budworm activity with extensive areas of defoliation lying east and west of Lake Winnipeg. New areas of severe defoliation occurred in the Nelson River District, Western Region and Southeastern Region — particularly in the provincial forests.

Spruce Budworm

Infestations of Spruce Budworm in the Whiteshell Provincial Park and the southern Interlake region entered their tenth consecutive season. Light to moderate defoliation occurred in scattered pockets in these areas. Severe defoliation, however, has occurred in the area east of Lake Winnipeg near the Ontario border from 1982 to 1985.

Stands of white spruce and balsam fir in the Lac du Bonnet district of eastern Manitoba are in a state of decline due to repeated spruce budworm attacks.

In 1984 and 1985 severe defoliation occurred in the Mafeking and Winnipegosis districts of western Manitoba. This outbreak appears to have expanded from a localized infestation that began in Mafeking in 1983.

The 1985 larval count in the Whiteshell and southern Interlake region showed a decline in population levels. This was likely due to an early hatch followed by below-normal temperatures in June. The decline does not appear to be a trend, however, as moderate to severe defoliation is predicted for 1986.

Dwarf Mistletoe

A total of $1.4 million was allocated for dwarf mistletoe management between 1984 and 1989 ($280,000 each year). In 1985, 66% of the budget was used for treatment operations and 11% for mistletoe ground surveys.

Aerial surveys were conducted to identify, locate and map mistletoe infected stands. Once identified, these stands were checked to determine the intensity and severity of the infection. During the 1985 field season, a total of 192 km of mistletoe ground survey cruise lines were conducted in the Grand Rapids, Easterville, Devil's Lake, Kettle Hills, North Moose Lake, and South Moose Lake areas.

In 1985, post-logging treatments were prescribed for a number of areas. This was basically a sanitation approach, removing all infected pine and all advanced regeneration scattered throughout various cut blocks. These treatments were prescribed in Belair Provincial Forest, Cowan, North and South Moose Lakes and Easterville areas in 1985.

Control of dwarf mistletoe in juvenile stands was accomplished by sanitation thinning and pruning treatments in the Belair Provincial Forest (60 ha), Easterville (20.2 ha), Devils Lake (10 ha), Kettle Hills (20 ha) and the Mitchell Lake (25 ha) areas.

The Grand Rapids area was selected for post-fire treatment because of its fire history and the large mistletoe infection in this area. In 1985, 60 ha of buffer strips were identified and treated.

Severely infected mature pine stands are unsuitable for commercial harvest. Salvage operations of these stands have been conducted to provide campground firewood for the Parks Branch. This past year approximately 400 cords of severely infected pine were harvested and utilized as fuelwood.

Armillaria Root Rot

Armillaria root rot continued to be a problem in red pine plantations located in eastern Manitoba. Red pine in this area, growing on the fringe of its range, is vulnerable to attack by this root rot fungus. The roots become infected by the fungus moving through the soil, or by contact between infected and healthy roots.

In 1985 numerous active infection centres were located in 30 to 35 year-old red pine plantations in southeast Manitoba. Assessments of damage and losses will begin later in 1986.

Dutch Elm Disease Control

During the 1985 summer surveillance season, approximately 18,000 elms were examined in various urban and rural municipalities. Due to the large number of elms infected in wild stands throughout southern Manitoba, particularly in eastern and central regions, control efforts were tightened to concentrate on elms in and around communities that have entered into agreements to share control costs with the province.

In 1985, the number of municipalities with Dutch elm disease (D.E.D.) increased from 62 to 72. D.E.D. was recorded for the first time in the Rural Municipalities of Ste. Rose, Lorne, South Norfolk, South Cypress, North Cypress, Whitewater, La Broquerie, Blanshard and Saskatchewan. Major urban centres, as well as major recreational areas such as the Northwest Angle Provincial Forest, Spruce Woods and Whiteshell Provincial Parks and Riding Mountain National Park, experienced an increase in Dutch Elm Disease.

Although D.E.D. continues to increase in wild stands, diseased elms in urban centres with control programs

were comparably low. Less than one percent of Winnipeg's elms were diseased, and in Brandon, less than two percent of the elms were infected. Most of these trees were found in wild stands along the riverbanks where control measures have proven less effective.

Dutch Elm Disease Control Program

	Winnipeg			Brandon		
Year	Elms sampled	diseased	removed	Elms sampled	diseased	removed
1982-83	2489	1100	6365	361	284	959
1983-84	1552	1569*	7961	209	137	1198
1984-85	1864	1866*	7858	338	180	1433
1985-86	3218	2219*	5464*	316	178	2384

**figures provided by the City of Winnipeg*

Outside of Winnipeg and Brandon there were an additional 2,853 elms sampled of which 1,711 or 60% were diseased. There were 7,500 elms removed in other urban centres and rural communities throughout the range of American elm in southern Manitoba.

Cost-sharing agreements covering Dutch elm disease control and management programs were negotiated by Manitoba Natural Resources with 39 of the 72 urban and rural municipalities known to be infected. These communities were responsible for implementing and carrying out programs which involved management strategies such as sanitation (buffering, tree removals and pruning), basal spraying, elm tree replacement, site-specific inventory and development of elm tree disposal facilities. This arrangement is 50:50 cost-shared to a maximum of one dollar per capita for the municipality. Total expenditures by the Province of Manitoba for these agreements in the 1985-86 fiscal year were $424,900 (including two separate demonstration agreements with Carman and Dauphin for $18,000).

Communities such as Neepawa, Rivers and Lac du Bonnet that had Dutch elm disease last year, had no disease this year. However, disease in other areas such as Carman and Morden increased considerably. The communities of Stonewall, Gimli, Morris and Altona have shown favourable results from sanitation practices. Over the last two years, for example, Stonewall has pruned many of its elms and basal sprayed for overwintering beetles. In 1983 Stonewall had 13 diseased trees, while in 1984 it had two and in 1985 it had only one.

The first observations of newly diseased trees in 1985 were made in Portage la Prairie on May 12 and in the Winnipeg area about May 28. The generally cool spring weather conditions and substantial infestation of cankerworms delayed the external symptoms and sampling of diseased trees in any great numbers did not get started until the end of June. Most sampling was done in July and the first week in August.

Canada-Manitoba Forest Renewal Agreement

In 1984, the governments of Manitoba and Canada signed a five year, $27 million forestry agreement aimed specifically at forest renewal, intensive forest management, applied research and technology transfer, and public information. These programs have been designed to address the broad objectives of security and expansion of Manitoba's timber supply.

Forest Renewal

Under the portion of the Canada-Manitoba Forest Renewal Agreement funded directly by Canada, Abitibi Price continued their surveys, cone collection and seeding initiatives, planting approximately 377,700 seedlings over 190 hectares. Manfor shearbladed 400 hectares in the Goose River and Moose Lake areas, part of Manfor's five year plan to shearblade 2,000 hectares and plant 1,600 hectares. Manfor also began reforestation in the Moose Lake Indian Reserve by planting 58,000 seedlings.

Intensive Forest Management

Dwarf Mistletoe control activities continued. Over 1,000 hectares of infected trees were pruned and cleaned. In other areas, 43,560 trees were planted

and eight miles of right-of-way were brushed for silvicultural access. Ground surveys were completed in the Grand Rapids, Swan River, Moose Lake and Devil's Lake areas.

Abitibi Price and Manfor also carried out thinning of black spruce and jack pine, site preparation and then planting of black and white spruce.

Applied Research, Technology Transfer, Opportunity Identification, and Nursery Development

A report and part of a procedure manual on the effects of aerial spraying of forestry herbicides on aquatic systems was produced, while another project monitored the effects of aerial spraying of glyphosate on vegetation and aquatic ecosystems.

Work also continued on three forest economics projects including an evaluation of silviculture costs, a survey of the wood-using industries, and an appraisal of fire damage. In addition, insect disease impact studies and surveys were conducted on 934 plots in provincial forests.

Activity under the Resource Data Base program focused on the preparation, testing, operation and maintenance of the Geographic Information System purchased in 1985. Maps and data have been produced for the 20 township test area.

Through the joint efforts of the Canadian Forestry Service, and each provincial government, a national forestry communications task force was created. The goal is to develop a national understanding and awareness of the importance of forestry for all Canadians through broadcast and print media. The campaign launch has been scheduled for January 1987. The advertising component of the campaign is only one portion of five. The other four components, public relations, documentation, internal communications and promotion will be carried out separately in each of the provinces at their own expense.

Jobs Fund Sectoral Project in Forestry

The sectoral project in forestry under the Jobs Fund has been treated as an extension of the Canada-Manitoba Forest Renewal Agreement and has been managed in a similar manner. The expenditure under the Jobs Fund Sectoral Project in Forestry for the year was $3,024,504. The four programs-forest renewal, forest management, nursery development and public information, continued to support projects under the agreement. As part of forest renewal, 3.6 million trees were planted, 112 hectolitres of cones were collected, and 793.5 hectares of land scarified. Thirty miles of silvicultural access roads were upgraded in the Swan River area, and the irrigation system at Pineland Provincial Forest Nursery was completed.

Forest management projects resulted in 1,565.2 hectares thinned, as well as 450 hectares site prepared and then planted with 35,000 trees.

Summary by Program 1985-86

	100% Provincial		50/50		Federal	
	Allotted	Expended	Allotted	Expended	Allotted	Expended
PROGRAM "A" Forest Renewal	744.0	736.7	—	—	$334.8	281.0
PROGRAM "B" Intensive Forest Management	280.0	252.3	—	—	661.6	608.7
PROGRAM "C" Applied Research, Tech Transfer, Opport. Ident. & Nursery Develop.	1,373.0	1,366.8	700.0	677.0	1,587.2	1,501.1
PROGRAM "D" Public Information, Evaluation and Administration	6.0	2.4	—	—	234.9	215.1
AGREEMENT TOTALS 1985-86	$2,403.0	2,358.2	$700.0	$677.0	$2,818.5	2,605.9

Garrison Focus Office

This office co-ordinates Manitoba's efforts against the construction of the Garrison Diversion Unit as authorized; acts as a focal point for the activities of the Manitoba Government in respect to this opposition; and acts as a source of updated information for public and non-government organizations interested in the project.

The Garrison Focus Office was established in February, 1982 as part of an increase in Manitoba's active opposition to the Garrison Diversion Unit as authorized. A firm of lawyers specializing in environmental issues in Washington, D.C. was employed to provide advice on how Manitoba's case could best be presented to members of the U.S. Congress. Close liaison with Canadian Embassy staff in Washington ensured that Manitoba's concerns were raised with key members of the U.S. House of Representatives, and Senate and Administration.

The Garrison Diversion Unit Commission appointed by the U.S. Congress in August of 1984 to review the project and recommend means of meeting North Dakota's contemporary water needs while at the same time reducing environmental and international concerns, issued its final report in December, 1984. The Commission's major recommendations were incorporated into legislation, limiting authorized irrigation to those areas that will drain to the Missouri River Basin. It provided for the construction of municipal, rural and industrial water delivery systems to meet the needs of the major population centres in North Dakota and allowed for the transfer of Missouri River water to the Hudson Bay Basin for such purposes only after proper treatment to ensure the removal of all foreign biota.

The Garrison Focus Office continues to monitor the project in order to ensure that Manitoba waters are protected. The passing of the new legislation by the U.S. Congress will enable the Garrison Focus Office to concentrate its efforts on ensuring that the remaining technical concerns are fully met.

The Garrison Focus Office distributed information on the project to students, organizations and environmental groups. Newspaper articles from American and Canadian publications were distributed to Canadian and American citizens providing up-to-date information on the progress of the project and details on the new legislation which in de-authorizing all irrigation in the Hudson Bay Basin with Missouri River water has met Manitoba's major concerns.

Lands

This branch administers Crown land in Manitoba under ***The Crown Lands Act****; maintains a Crown lands register; negotiates outstanding treaty claims and land settlements with Indian bands and the federal Department of Indian and Northern Affairs; and administers the allocation of wild rice licences on Crown land.*

Land Administration

During 1985-86 this section continued to circulate requests for the use of Crown land and administer the various contracts concerning land uses.

In January 1986, the administration of vacation home permits and leases within designated park boundaries was returned to Parks Branch with the support staff for the program. Lands Branch will continue to provide computer support and services for its operation.

Crown Land Sales and Permanent Dispositions

Orders-in-Council approved	85
Parcels of land approved for sale	573
Agricultural transfers	31
Residential transfers	53
Recreational transfers	14
Commercial/Other transfers	176
Long-term agreements paid out and transferred	20
Conveyance of minerals	22

Leases, Permits and Licences

Leases and Permits in effect	3528**
Assignments processed	448
Recordings for collateral	128
New applications processed	575
New leases issued/renewed	351

***This figure does not include the approximately 5,600 Parkland leases and permits which were administered until December 31, 1985.*

Revenue — Land Administration

Sales:	
Agricultural	$255,034.00
Primary Residences	75,175.00
Recreational	67,290.00
Commercial/Other	85,210.00
Subtotal	$482,709.00
Lease/Permit rentals	433,794.00
TOTAL	$916,503.00

Crown Land Registry

The Crown Land Registry is the only record of original dispositions of Crown land in Manitoba, whether they were made by the federal government prior to 1930 or by the province. The accuracy of record and interpretation of the record are critical. Staff are called upon on a daily basis to provide information and interpretations to the Land Titles Office, legal firms, other branches, agencies and departments and to the public. Registry staff also continued to assist the ever-increasing number of people who were doing genealogical research.

The Crown Land Registry includes a record of all land transactions under The Crown Lands Act and various other Acts. These include sales, leases, permits, easements, licences and reservations of land. In 1981, a program was designed to convert from a manual system to an automated computer system. Data transfer from the manually-maintained registry to the automated system was completed in March 1986.

The automated Crown Land Registry has evolved into a Crown Land Information System that accommodates a variety of related land administrative functions. The Parks Branch vacation home permits and leases are also supported on the registry. The system provides for one-line data access through 14 visual display terminals in Lands Branch and one in the Thompson Regional office. Other users that access crown land information through their own hardware include Manitoba Hydro, Municipal Affairs, Agricultural Crown Lands, Parks Branch, and Regional Services of Natural Resources. The system also is tied in with the Winnipeg Land Titles automated system.

The next step in computerization has been taken to develop a Central Crown Land Registry. This would include the principles of the existing automated Crown Land Registry but would provide for a central record

of all Crown land (i.e. land administered under **The Crown Lands Act** as well as Crown land administered by departments and agencies other than Lands Branch and under Acts other than **The Crown Lands Act**).

Special Programs

Wild Rice Program

The wild rice program was delivered by four staff members, supported by Regional Land Managers and Natural Resource Officers. The field program consisted of crop surveys, test seeding, lake assessment and an on-site extension service. The latter, and research functions, have become more important with increasing northern development and production problems in certain areas.

Supported by an advisory committee with representation from the Southeast Resource Development Council, Interlake Tribal Council and the Fort Alexander Indian Band, a harvest program was continued from previous years for the 1985 Whiteshell harvest. The program involved the supervision of harvest zones with varying dates for hand harvesting and mechanical harvesters.

The 1985 provincial wild rice crop reached the ten year average of 625,000 pounds green rice, with price to buyers ranging from $0.60 to $1.35 per pound. Northern Manitoba experienced a poor crop, with average crops in the Whiteshell and other areas of the province.

Wild Rice Harvest

	1983	1984	1985
Total Harvest (pounds)	335,661	620,655	608,247
Lakeside Price (per pound)	$1.48	$1.80	$1.05
Licences	194	341	446
Harvest Permits	11	34	48
Buyers Permits	—	12	9

Indian Land Claims

In accordance with established statutes, agreements and policy, the Indian Land Claims Section is responsible for the research, negotiation and implementation of land claims settlements in Manitoba.

Twenty-three Indian Bands have validated treaty land entitlement claims stemming from the original signing of the treaties, while another five are under review by the federal Department of Indian and Northern Affairs. In addition, a comprehensive agreement on outstanding Treaty Land entitlement is pending.

The York Factory Band has submitted a study identifying its land exchange and land use selections under the terms of the Northern Flood Agreement as well as selections for treaty entitlement purposes.

Federal Privy Council Orders were received confirming reserves at Bird for the Fox Land Band and at Dunsekikan Island for the Fairford Band.

Pursuant to negotiated conditions, Orders-in-Council were passed effecting the transfer of lands to Canada for the use and benefit of the Chemawawin Band as compensation arising from the Grand Rapids forebay Letters of Intent, the War Lake Band for treaty entitlement and the Fairford Band for re-instatement of original reserve lands.

Surveys have been completed for the transfer of provincial Crown land to Canada for the use and benefit of the York Factory Band as treaty entitlement, and to the Gods River and Grand Rapids as exchange lands.

Negotiations were also in progress with the Mathias Colomb Band for treaty land entitlement at Hughes Lake, the Nelson House Band for treaty land entitlement at Nelson House, the Waterhen Band for compensation arising out of the takings for public purposes at Skownan, the Barrens Lands Band for treaty land entitlement at Brochet and the Cross Lake, Nelson House, Norway House, Split Lake and York Factory Bands for compensation lands under the terms of the Northern Flood Agreement.

Indian Land Claims — Summary

	Acreage	P.C. Order	O/C	Surveyed	Under Negotiation
Fox Lake	97.71	X			
Fairford	6.00	X	X		
Chemawawin	11,057.18		X		
War Lake	204.86		X		
York Factory	2,390.00			X	
Gods River	344.18			X	
Little Grand Rapids	660.00			X	
Mathias Colomb	3,765.00				X
Nelson House	12.28				X
Waterhen	263.57				X
Barren Lands	5.80				X
Cross Lake	31,422.00				X
Nelson House	13,720.00				X
Norway House	12,626.00				X
Split Lake	6,570.00				X
York Factory	1,474.00				X

Special Projects and Appraisals

In 1985-86, as a result of negotiations with municipalities concerning the capital upgrading required before the municipality would assume responsibility for providing services to existing Crown subdivisions, three further recreational/residential subdivisions were upgraded to municipal standards, and plans registered in the Land Titles Offices. This is an ongoing project whereby provincial liability for provision of services is reduced and the lots can be made available for sale to the current lotholder. A total of 88 lots were made available for sale for a total sale value of approximately $824,000.00.

Approximately 150 appraisals involving agricultural Crown land, Local Government District lands and a variety of residential/recreational/commercial lots were completed throughout the year.

Negotiations continued involving the exchange of Local Government District lands. Approximately 25 parcels were returned directly to the Local Government Districts and 20 parcels were sold to agricultural lessees at the request of the Local Government District.

Regional Land Management

Regional land managers continued to operate in the seven Natural Resource regions of the province. As well as providing a local focus for the administration of Crown lands, they continued to take a lead role in chairing local inter-disciplinary land use planning committees and participating in Planning District and municipal land use planning. With the assistance of local Natural Resource Officers, the Land Managers counselled users of Crown land and ensured compliance with the terms of the user contracts and **The Crown Lands Act.**

Parks

This branch administers a parks system that provides for the conservation and management of fauna and flora, and the preservation of ecological, cultural, historical and other resources therein; develops facilities and services to meet the recreational needs of the public, and enables Manitobans and visitors to Manitoba to enjoy outdoor recreation; plans and operates park visitor and special user programs; and manages recreational businesses in parks.

Planning

Systems and Management Planning

In 1985 there were several significant achievements and new directions in park planning. Manitoba's first wilderness park and now largest park, Atikaki, was designated. The Pinawa Dam site, Beaudry Provincial Park and Spruce Woods Provincial Park were redesignated as Provincial Heritage Parks. A park management plan for Turtle Mountain Provincial Park received ministerial approval, and a draft management plan for Hecla and Grindstone Provincial Parks was distributed to the public for review. A management plan for the Bloodvein River was initiated and will be used to secure a Canadian Heritage Rivers designation from the Canadian Heritage Rivers Board. As well, the Seal River was investigated for possible inclusion in the Canadian Heritage Rivers system.

Program Management

Capital Projects

In the Northeastern Region repairs were completed to the fire-damaged water intake at Paint Lake Provincial Recreation Park, and the platforms and stairs at Pisew Falls Heritage Park were rebuilt.

In the Northwestern Region several activities took place. In Clearwater Lake Provincial Park the campground roads, site pads and parking lots were resurfaced, Guy Hill School was dismantled, and the platforms and structures of the Caves Self-guiding Trail were modified. At Rocky Lake Provincial Recreation Park the campsites were improved, the campground road upgraded, and the parking lot landscaped.

In the Western Region the campground at East Blue Lake in Duck Mountain Provincial Park was upgraded. Access to Gull Lake, Two Mile Lake and Beautiful Lake was improved for anglers. The new campground at Rainbow Beach Provincial Recreation Park was completed. At Asessippi Provincial Park, a kitchen shelter and pumphouse were installed, the boat storage facilities were expanded, and the water system and beach concession were upgraded.

In the Interlake Region, Buffalo Lake Wayside Park was closed, but Grand Rapids Wayside Park was upgraded. Development continued at the Gull Harbour Marina in Hecla Provincial Park. The boat-launching ramp was reconstructed and a marina services dock was built. Also continued at Hecla was the stabilization of historic buildings. The main access road to Grindstone Provincial Recreation Park was upgraded to provide improved drainage. At Winnipeg Beach Provincial Recreation Park the boat slips in the marina were repaired, and play structures were installed in the children's playground. Memorial signs were relocated in Camp Morton Provincial Recreation Park, and the trees affected by Dutch elm disease were removed. The beach at Lundar Beach Provincial Recreation Park was improved. Camping bays were constructed at Netley Creek Wayside Park, while the interior of the Kenosewin Visitor Centre at Lockport Heritage Park was completed.

In the Eastern Region the cottage subdivisions in Nopiming Provincial Park were brushed, and the roads there were improved. Registers were set up for canoeists on the Rabbit River and the Seagrim Lake systems. A back-country clean-up program was commenced and a garbage dump was established at Beresford Lake. Bear-proof garbage cages were installed at Flanders and Davidson Lakes, where the boat-launching ramps were also constructed. Subdivisions of 19 and 22 lots were made available and were allocated at Davidson and Flanders Lakes, respectively. At Birds Hill Provincial Park the deer-viewing blinds and trail were completed, and the Nordic ski patrol building was constructed. At Grand Beach Provincial Park the redevelopment of the parking lot at the main beach was completed. At Pinawa Dam Heritage Park information kiosks, sidewalks and a park office were constructed as part of the area's designation as a heritage park. In conjunction with the Wildlife Branch aerial mapping of the caribou herd in Atikaki Provincial Wilderness Park was completed. Radio telephone systems were installed at Wanipigow Lake and Wallace Lake Campgrounds for emergency situations.

Nesting cover, tall-grass prairie and forage crops for white-tailed deer were developed at Beaudry Provincial Heritage Park in the Southeastern Region. Washrooms and information signs were also installed, and the cross-country and snowmobile trails were redesigned and upgraded. St. Norbert Heritage Park was completed with the construction of paths, landscaping and the installation of signs. The refurbishing of Turenne House was continued.

In the Whiteshell Region a moose survey was completed, the canoe routes were upgraded and backcountry clean-up undertaken. Tugby and Bear Lakes were stocked with trout as part of the fisheries improvement program.

Committee work continued with the Whiteshell District Association to revise regulations pertaining to vacation homes with the intent of upgrading sewage disposal to improve water quality and to permit greater flexibility and equity as to sizes, number and types of structures on each lot.

To ensure proper application of policy in the field and to improve service to the public, the Leases and Permits Section was transferred from the Crown Lands Branch to the Parks Branch. This section administers the vacation home lots in provincial parks of which 5,298 are on Crown land and 398 on patented land.

Beach Safety Programs

Due to adverse weather conditions, there was a decline in the number of users of beaches in provincial parks. The Manitoba Sailing Association conducted a voluntary pilot boardsail patrol at Grand Beach Provincial Park. Beach patrol services were made available by 64 officers at 12 beaches in provincial parks for an estimated 413,600 users. There were 337 rescues made and, unfortunately, one drowning death at each of Birds Hill, Winnipeg Beach and Hecla provincial parks.

Park Patrol

Good public relations was the major emphasis of the spring training session for seasonal staff.

In the Northeastern Region there was a 100% increase from the previous year in the number of charges laid. Foot patrols in the Northwestern Region increased the number of contacts with the public. The major enforcement problem in this region related to the use of trail bikes on cottage roads.

In the Interlake Region the increased patrolling of the Hecla golf course brought positive results. However, theft and vandalism continued at some campgrounds.

In the Southwestern Region the increase in vandalism and rowdyism at Spruce Woods Provincial Heritage Park was countered with increased enforcement.

In the Southeastern Region new patrol systems were introduced at Norquay and Lynch Point Provincial Recreation Parks.

Approximately 126,848 visitors were reached by 87 officers. They responded to 369 emergencies, provided information to 77,870 visitors, issued 791 warnings and charged 1,121 offenders. The breakdown of the workload of the Park Patrol was 61% information contact, 10% enforcement, 8% oral warnings, and 21% other duties.

Capital Expenditures

($000's)

Major Parks	1982-83	1983-84	1984-85	1985-86
Asessippi Provincial Park	43.7	29.1	19.6	44.2
Beaudry Provincial Park	—	39.8	38.4	47.6
Birds Hill Provincial Park	163.4	196.2	104.8	99.0
Clearwater Lake Provincial Park	81.9	40.2	19.0	60.2
Duck Mountain Provincial Park	90.5	48.2	51.0	53.0
Grand Beach Provincial Park	189.7	118.8	101.7	80.0
Grass River Provincial Park	10.5	24.9	20.0	18.0
Hecla Provincial Park	138.6	544.4	638.7	829.7
Nopiming Provincial Park	115.4	78.6	48.4	80.1
Spruce Woods Provincial Heritage Park	171.9	128.3	111.6	130.9
Turtle Mountain Provincial Park	38.8	42.9	60.6	48.6
Whiteshell Provincial Park	780.8	741.6	542.4	554.0

Cost/Revenue Performance by Service[1]

Item	Number	Cost[4]	Revenue ($)	Revenue/Cost
Golf Courses[2]	2	527,737	383,339	72%
Campgrounds	99[3]	2,781,610	1,410,804	50%
Cottages	569.6	1,420,745		130%
Service Fees			513,107	n/a
Rental			1,115,231	n/a
Development Fees			163,353	
Entrance Gates	14	199,924	534,388	267%
Vacation Cabins	34	80,859	74,637	92%
Commercial Concessions, Games Areas and Miscellaneous	150	n/a	310,884	n/a
Non-revenue Areas		5,806,625	n/a	n/a
Total		10,817,700	4,563,457	42%

[1] Based on maintenance costs only.
[2] Increases were approved for golf course fees.
[3] Camping fees collected at only 70 campgrounds.
[4] Based on a 1% cost reduction.

Cost/Revenue Performance by Park

Major Parks	Actual Cost 1985-86 ($000's)	Actual Revenue 1985-86 (All Sources) ($000's)	Revenue/Cost Percentage
Asessippi Provincial Park	217.4	30.2	13%
Beaudry Provincial Park	36.4	40.4	110%
Birds Hill Provincial Park	1,283.8	341.2	26%
Clearwater Lake Provincial Park	331.9	83.1	25%
Duck Mountain Provincial Park[1]	325.1	146.7	45%
Grand Beach Provincial Park	750.3	353.0	47%
Grass River Provincial Park[2]	71.4	22.0	30%
Hecla Provincial Park	936.7	286.1	30%
Nopiming Provincial Park[3]	279.5	203.2	72%
Spruce Woods Provincial Park	620.6	94.9	15%
Turtle Mountain Provincial Park	399.3	38.6	9%
Whiteshell Provincial Park	3,151.9	2,111.1	66%

[1] Swan River District.
[2] Cranberry Portage District only.
[3] Lac du Bonnett and Bissett Districts.

Summary of Park Revenue

(April 1, 1985 to March 31, 1986)

Park Use	Total Revenue 1984-85	Total Revenue 1985-86
Park Fees:		
Camping	1,544,324	1,410,803
Park Entrance (Daily)	327,256	245,608
Park Entrance (Seasonal)	298,980	287,680
Park Entrance (Bus)		1,100
Sub-total	$2,170,560	$1,945,191
Games Areas:		
Golf Course (Hecla Island)	137,354	164,385
Golf Course (Falcon Lake)	189,199	215,954
Tennis Court (Falcon Lake)	6,198	5,398
Miniature Golf (Falcon Lake)	25,514	24,458
Lawn Bowling (Falcon Lake)	3,311	3,348
Marina (Gull Harbour)	2,486	2,140
Ski Tow (Birds Hill)	35,197	44,932
Ski Tow (Falcon Lake)	8,698	10,406
Sub-total	$407,957	$471,021
Rentals/Leases:		
Cabin Rental (Camp Morton)	26,729	25,275
Cabin Rental (Hecla)	35,505	35,068
Cabin Rental (Ironwood Point)	13,877	14,294
Sub-total	$76,111	$74,637
Permits/Leases:		
Summer Homes	1,499,866	1,671,536
Commercial	187,602	163,900
Lot Development Fee	106,269	163,353
Land Permits/Leases	40,921	40,360
Service Levy (Private Lots)	21,675	30,714
Miscellaneous	9,056	10,360
Sub-total	$1,865,389	$2,080,223
Other:		
Camping (Winter Storage)	6,225	5,450
Other Games Area Revenue	789	867
Laundry Facilities	1,253	1,363
Miscellaneous	28,845	55,123
Sub-total	$37,112	$62,803

Visitor Services

In 1985 the average temperature of June, July, August and September was the lowest on record in Manitoba. Also, August was the wettest on record. These conditions played a large part in the drop in attendance at provincial parks.

More than 1.3 million vehicles entered Manitoba's provincial parks in 1985-86 with vehicle counts in the top ten parks down 8.4% from the previous year, and 6.5% overall. Whiteshell Provincial Park was the only park of the top ten to show an increase (+7.2%). The number of camping permits issued decreased by 12%.

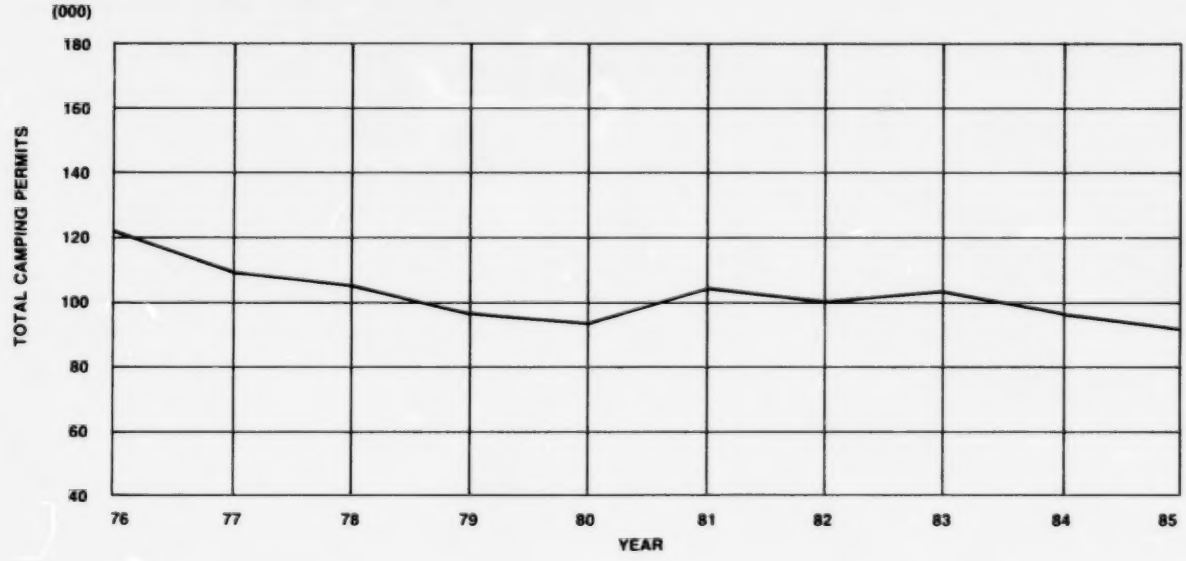
25th Anniversary Celebrations

In 1985 Manitoba celebrated the 25th anniversary of provincial parks. The goals of the 25th anniversary programs were to increase Manitoba's awareness and understanding of provincial parks, now numbering over 150; to encourage community participation in the anniversary celebrations; and to involve youth in the provincial parks system. These goals were met through the initiation of a program of co-operative activities, through efforts to establish co-operating associations, and through the organization of park weekends at 17 provincial parks, ranging from Paint Lake Provincial Recreation Park in the north to Turtle Mountain Provincial Park in the south, and from Asessippi Provincial Park in the west to Whiteshell Provincial Park in the east.

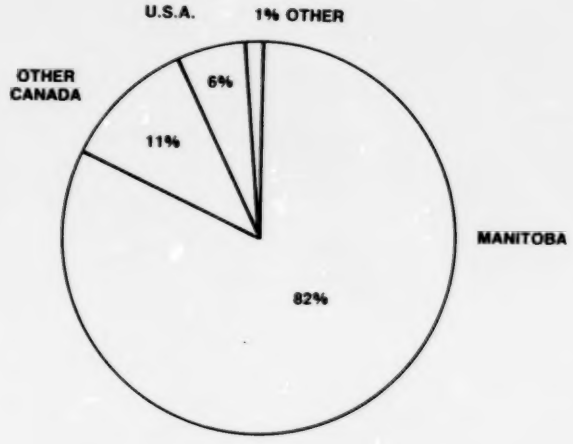
These park weekends were well attended in spite of the coldest and wettest summer on record in Manitoba. During the weekends both campground use and vehicle counts increased by 10% compared with the same period in previous years.

An estimated 500,000 people were contacted through newspaper advertising, promotional articles and calendars of events that were issued regularly. There were at least 19,761 participants at over 230 different activities hosted during the park weekends.

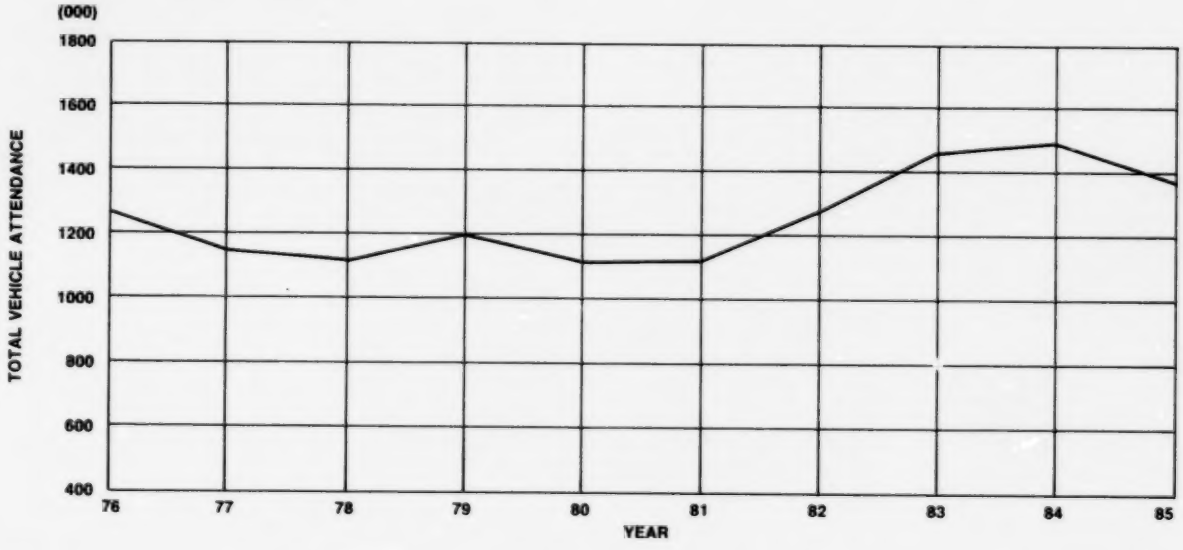
Camping Permits Issued



Origin of Permit Holders



Vehicle Attendance



Park Entrance Permits

Year	Daily Permits		Daily Bus Permits		Seasonal Permits		Total Permits	Total Revenue
	Number	Revenue	Number	Revenue	Number	Revenue		
1982	141,175	$282,350.00	69	$770.00	29,655	$296,550.00	170,899	$579,670.00
1983	160,380	$320,758.00	50	$580.00	29,451	$294,510.00	189,881	$615,848.00
1984	163,163	$326,326.00	95*	$1,030.00	29,888	$298,880.00	193,146	$626,236.00
1985	122,804	$245,608.00	98*	$1,100.00	28,768	$287,680.00	151,670	$534,388.00

Note: *Figures include revenues and permits collected at the Winnipeg office: 1982 — $630.00; 1983 — $490.00; 1984 — $430.00; 1985 — $480.00.*
**Includes seasonal bus permits.*

The activities ranged from the less energetic pursuits of sketching, fishing, bannock baking, heritage hayrides, horseshoe pitching and sculpturing with sand, to the more active ones of canoe, raft and bathtub racing, sailing, windsurfing, tube-racing and baseball tournaments. There were also pancake breakfasts, scavenger hunts, dances, an old time jamboree, guided walks, and displays of arts and crafts. Stage performances included local singers and tribal, square, Ukrainian and East Indian dances.

Co-operative Activities

A new program of co-operative projects was introduced in 1985. Twenty-seven co-operative projects were initiated. Six were completed, eight were underway, and six remained in the negotiating stage. Completed projects range from the construction of playground structures in co-operation with the Town of Winnipeg Beach and the Winnipeg Beach District Recreation Commission, to the production of promotional postcards by a private group, the Impressionists. In the process of being completed were a cross-country equestrian course by the Manitoba Horse Council Inc., interpretive signing for several sites, beach enhancement, a study kit on provincial parks and a playing field. Negotiations were begun for the construction of ski chalets and cross-country ski trails, a bird check-list and various projects with the Manitoba Wildlife Federation.

Public meetings were held at Glenboro, Carberry and Brandon to gauge the interest in forming a co-operating association for Spruce Woods Provincial Heritage Park. A founding meeting of those interested was held in February, 1986, to set objectives, establish bylaws, and to arrange for incorporation.

A public meeting was also held in Whiteshell Provincial Park, and there were also private meetings with those individuals interested in forming a co-operating association for Hecla Provincial Park.

Interpretive Programs

Two new slide programs, **The Great Gray Owl** (a co-operative project with the Wildlife Branch) and **Grass River**, were completed.

Interpretive signs were prepared in co-operation with the Water Resources Branch for Asessippi Provincial Park, and St. Malo and Stephenfield Provincial Recreation Parks. Interpretive signs were also produced for the Wild Wings Self-guiding Trail in Grand Beach Provincial Park. Also completed were a trailhead map for the Rabbit River/Cole Lake canoe route in Nopiming Provincial Park, and an informational sign about the S.S. Playmore for the playground in Spruce Woods Provincial Heritage Park. Several displays were installed at the Hecla Visitor Centre at Gull Harbour.

Summer programs were offered again in Whiteshell, Birds Hill, Grand Beach and Hecla Provincial Parks. The interpretive programs for schools were continued at Birds Hill Provincial Park and Spruce Woods Provincial Heritage Park. Open houses were held throughout the year at Birds Hill Provincial Park. The summer program at Spruce Woods Provincial Heritage Park included Pine Fort Days, car caravans, special children's activities, guided trail rides and teachers' in-service programs.

Special events in winter included Beaver Days and the Mantario Fun Rally in Whiteshell Provincial Park, both of which were even more popular with snowmobilers than in the previous year. The third annual Grand Beach Ski Loppet and the sled dog races were held, as were the Spruce Woods Ski Loppet and sled dog races.

Promotion

In addition to the several programs advertised annually by the Visitor Services Section there was extensive complementary promotion through the several contacts established with the local media. Major coverage was in the Outdoors Supplement of the Winnipeg *Free Press*, and in the CBC's radio series, "Parks Destination". Provincial parks were also promoted during Wildlife Week and Environment Week, and at the Recreational Vehicle Trade Show in Winnipeg and, with Parks Canada, at the Red River Exhibition.

Commercial and Non-profit Organizations

Contracts were negotiated for the operation of the tearoom in Kennedy House, the Kenosewin Visitor Centre in Lockport Heritage Park, the food concession in the Hecla Visitor Centre, and for the construction of a lodge at Childs Lake in Duck Mountain Provincial Park. A water slide in Grand Valley Provincial Recreation Park was developed with a private investment of over $300,000. The facility became fully operational, employing 46 people. The adjacent historic site was protected, and an interpretive development plan prepared.

Public Information Services

This branch advises on and co-ordinates communications programs to identify public needs and to provide information to the public about policies and programs.

The 1985-86 communications strategy for Natural Resources continued to stress the consideration of staff as an important audience, information gathering as well as dissemination, and cost effectiveness. Under the umbrella strategy, multi-year branch-specific strategies were developed for communications in Fisheries and Forestry branches.

Education

Approximately 10,000 grades 5 and 6 students were enrolled in the Mani-Pac program which encourages resource education projects in schools. Mani-Pac consists of colourful collecting cards on Manitoba species, available in both official languages.

The Outsider, an outdoor newsletter for Manitoba schools, was discontinued at year end due to fiscal restraint.

Media and Community Relations

This section is responsible for both advertising (paid media messages) and publicity (free public service announcements). The weekly radio program "Resources News" was produced and distributed in varying formats, supplemented by a newsletter for the print media. Weekly radio appearances during regular programming, augmented with television interviews were also undertaken to provide up to date information on resource related topics.

Public opinion and the success of advertising and publicity activities were monitored through public inquiries and a weekly clipping service which reviewed all daily and weekly newspapers. A 25% decrease in public inquiries and a reduction in the number of special events were reported over the past year, partly a reflection of staff vacancies and a change in record keeping.

Media and Community Relations Summary

	1985-86	1984-85
Direct Public Service		
Public Inquiries	18,661	25,444
Publication Requests	2,853	3,796
Film Loans	946	1,172
Publicity		
News Releases	105	156
Special Events (Press Conferences, Ceremonies)	11	105

Publications, Signs and Displays

This section is responsible for designing, co-ordinating production, and distributing the department's publications, signs and displays. Many projects are noted in the reports of other branches. The quarterly essay **Conservation Comment** and the departmental **Annual Report** were produced by this section, along with a number of other publications and displays that relate to the department as a whole.

Publications, Signs and Displays Summary

	1985-86	1984-85
Publications Produced		
New	15	13
Reprinted	31	65
Displays		
New	6	5
Refurbished	1	5
Signing		
New Multi Sign Projects	12	18
Miscellaneous	26	19
Miscellaneous Printed Materials (Posters, Crests, etc.)	90	70

Regional Services

This branch enforces resource Acts and Regulations; delivers resource management programs to the public and other government agencies; operates and maintains provincial parks; manages the forest fire prevention, detection and suppression programs.

Regional Activities

Northeastern Region

Fisheries
There were 102 active commercial fisheries in the 1985 summer season, an increase from 97 in the previous summer season. Production was the highest it has been in the 1980's, mainly due to an increased whitefish harvest.

Ten commercial sturgeon fisheries were made available in the Northeastern Region during the 1985 summer. A total of 20 licences were issued, with sturgeon harvested by nine of these licence holders. This resulted in a slight increase in production over last year.

A total of 30 active commercial fisheries operated in the winter of 1985-86. Production increased slightly from the past two winters, but did not equal the good production experienced in the 1981-82 season. Angling activity was average during the year, with little notable increase in use.

Forestry
Mantor initiated construction of a new road from P.R. 391, 6 km south of Thompson to Johnson northeast of Paint Lake. The Joey Lake Road was also extended to within 1/2 mile of the Grass River, south of Paint Lake.

Parks
Improvements to Paint Lake Provincial Recreation Park included further development of a playing field for baseball and soccer, with additional clearing and stumping being done. The winter recreation area remained popular.

Reconstruction of the Pisew Falls walkways was commenced.

Wildlife
The 1985 moose season was considered normal, with hunters taking an average number of animals.

Geese were abundant on the coast from north of Churchill to the Kaskattama River and provided exceptional hunting opportunities again this past season.

Ptarmigan provided good hunting, especially along the coastline. Average numbers of spruce grouse were observed, however ruffed grouse populations appeared to have dropped.

Barren-ground caribou made a rare appearance in the Churchill-Tadoule Lake-South Indian Lake area and have remained there in good numbers.

The number of complaints respecting wolves was down in all areas for the second year in a row. A high incidence of rabies appeared in fox and wolf populations along the coastline and in the Gillam area.

The number of complaints regarding beaver was normal with most being dealt with through the use of special permits and by referral to registered trappers.

Enforcement
No major investigations were initiated, although additional effort was placed on preventative policing activities at Paint Lake Provincial Recreation Park. The number of enforcement actions was normal. The monitoring of angling increased in the Island Lake and God's Lake areas due to heavy angling pressure in these areas.

Special Projects
Considerable time was spent by the Natural Resource Officer at Gillam developing work permits and inspecting work progress at the Limestone hydro project. Later in the year a full time N.R.O. was appointed to monitor the project and an office was opened at Sundance.

Northern Flood Agreement involvement tapered off as direct negotiations continued between the Indian Bands involved and Hydro.

Northwestern Region

Fisheries
Commercial fish production was less than the previous year. This was partly due to the extreme ice thickness which made it more difficult to set and move nets.

Several lakes in the Snow Lake area were designated as "High Quality" lakes with reduced creel limits.

Half limits were initiated on four lakes in The Pas area for the month of April to reduce harvest during the pre-spawning period.

Parks
The 25th anniversary celebrations for Provincial Parks were successful due to co-operation from community groups. The community of Sherridon, in conjunction with Natural Resources and the Department of Northern Affairs, initiated construction of a campground at Kississing Lake.

Wildlife
A one-year hunting closure in Area 8 was negotiated with the various users and interest groups including The Pas, Moose Lake and Easterville Indian Bands, The Pas Area Wildlife Federation, Cormorant and Moose Lake Community Councils and the Wildlife

Branch. Negotiations are continuing to extend the closure until the moose population reaches an acceptable level.

A bait station was established in the Saskeram Wildlife Management area in an attempt to intercept waterfowl and prevent crop damage in the farming area.

Enforcement
The region directed its main enforcement effort at angling and remote area hunting. A total of 104 violations were encountered, resulting in 50 prosecutions and 54 warnings. The total number of violations was down from the previous year in spite of the increased effort. This would indicate that sport angling and hunting compliance had improved.

Special Projects
New mines were opened up by Hudson Bay Mining and Smelting Co. Ltd. at Namew Lake and Tartan Lake.

There was a considerable increase in claim staking and line cutting in the Cranberry Portage - The Pas areas. This was due to the ability of the exploration companies to pick up anomalies at much greater depths underlying the limestone formation.

Production of wild rice in Northwest Manitoba in 1986 was less than the previous year due to cool temperatures and high water. Approximately 100,000 pounds was produced.

Western Region

Fisheries
Angling pressure on the Lake of the Prairies was down from previous years primarily due to weather conditions. The reduction of the creel limit appeared to have very little effect on angler participation.

For the second consecutive year emphasis was placed on enforcement patrols during the fall commercial fishing season on Lake Winnipegosis. A 96% compliance rate was recorded.

At Glad Lake in the Duck Mountain Provincial Park, existing fish were removed by netting to allow stocking with Arctic char.

Forestry
An experimental program was introduced in 1985-86 whereby the permit system rather than timber sale quotas were used for volumes of less than 1,000 m^3. The program resulted in a decreased workload due to lessened timber sale supervision.

Parks
In May 1985 the campground at Rainbow Beach Provincial Recreation Park was opened to the public. The campground featured 80 campsites complete with fully modern washrooms and showers. The original 30 campsites were converted to seasonal use.

Wildlife
The department continued to assist R.M.'s, L.G.D.'s and other agencies in resolving beaver problems.

A special program was implemented to remove excess beaver from Registered Traplines in Duck Mountain Provincial Forest in order to reduce beaver related impacts on local farmlands.

Enforcement
The inter-district strategy on enforcement continued throughout the year. As a result of previous efforts, illegal hunting of big game was reduced 75% in the target area. Efforts were redirected to other problem areas, such as the illegal trophy hunting of deer in the western part of the region.

Fire Programs
Creating awareness of fire prevention methods and public co-operation continued in the fire prevention program. Emphasis was placed on the farm communities to reduce human-caused fires during the spring season.

Southwestern Region

Fisheries
Over 1,700 anglers were checked during the year, with 97% compliance experienced during regular patrols.

Lake Manitoba commercial fishing patrols were carried out during the winter, with special emphasis on monitoring the experimental perch fishery.

Parks
Improvements were made to the maintenance yard to comply with regulations dealing with gasoline and other chemical storage. The Turtle Mountain Canoe Route was opened in 1985, with positive feedback from users. Park use generally reflected the summer's unseasonable weather. Camping was down by approximately 8% in comparison to 1984, however, day use was down considerably.

In Spruce Woods Provincial Heritage Park the second phase of the Spirit Sands development was completed and officially opened to the public. Interim Management Guidelines were drafted for back-country uses, such as horseback-riding trails, hunting and wildlife depredation. Upgrading of the campground area continued.

The Rehabilitation Program in co-operation with the Brandon Correctional Institute provided assistance with maintenance projects at both Spruce Woods Provincial Heritage Park and Turtle Mountain Provincial Park.

Wildlife
As a result of a wet fall and poor harvest weather, staff responded to 446 waterfowl depredation complaints, compared to 33 in 1984.

The Riding Mountain Beaver Control Program continued to be well received, with 143 complaints actioned, 270 dams dynamited and 420 beaver removed.

Intercept deer feeding was successful in alleviating crop depredation and traffic hazards in specific problem areas.

Enforcement
Staff checked a total of 4,487 deer hunters during the two-week season. Loaded firearms in vehicles was the most frequent infraction. Hunting on private land without permission was also a frequent infraction, often in response to landowner complaints.

Special Projects
A 24' x 34' R.T.M. building was purchased at Ste. Rose du Lac and moved to Shoal Lake as an office building. This completed district headquarters development in the Shoal Lake District.

Chain-link fence compounds were constructed at Virden and Brandon to secure departmental equipment.

Eastern Region

Fisheries
Sport fishing was excellent throughout the area east of Lake Winnipeg. Air patrols into remote lakes, lodges and outcamps were increased in order to ensure compliance with creel limits. A total of 3,768 anglers were checked with 105 violations detected, indicating a 97% compliance rate.

Forestry
Abitibi-Price continued cutting operations in the Beaver Creek and Hay Bay areas with its commuter operation consisting of 44 men and 18 skidders. There were also 30 third party and private operators cutting timber during 1985-86.

The "Cut Your Own Christmas Tree" program provided some 6,000 trees, a slight increase over last year.

Parks
Birds Hill Provincial Park was extremely busy during the summer hosting two major events — the 12th Annual Winnipeg Folk Festival and the Star Concert. Total attendance for the two events was 30,000.

The Old Pinawa Dam was designated as a Heritage Park and development of a day use area was completed.

In Nopiming Provincial Park two new cottage subdivisions were established at Flanders and Davidson Lakes.

Wildlife
There were 83 problem wildlife occurrences actioned by staff.

Through a joint venture with Abitibi-Price Ltd., five woodland caribou were tagged and collared with radio telemetry in the Shallow Lake area in order to study the relationship between migration routes and timber harvesting.

Enforcement
Special enforcement efforts were again undertaken to curb sturgeon poaching in the Winnipeg River.

Wild Rice
Harvesting activity was generally light with 427,000 lbs of wild rice produced in this region. Quality in the north was considered good with rice worms and poor maturing not as prevalent as in the southern areas. Staff carried out 100 harvesting inspections on lakes in the Lake Winnipeg East area.

Fire Programs
Due to cool wet weather the Eastern Region experienced a below average year in fire occurrences. Only 58 fires required action, of which twenty-three were caused by people. There were 18 prosecutions and 24 warnings for fire violations. Four peat fires continued to smoke all winter in the Stead and Lac du Bonnet areas but created no serious health or visibility problems. More emphasis was placed on training fire fighters this year with 167 people trained in local government districts and rural municipalities.

Interlake Region

Fisheries
Commercial fisheries patrols during the open water season and winter continued. Increased patrols were mounted to respond to illegally sized nets fishing outside the authorized area, and fishing during the closed season. Production was poor for commercial fishermen within the region.

There were 9,579 sport fishermen checked by staff, with a 98% compliance rate experienced.

Parks
The newly completed Red River Road Parkway, Kennedy House, and Lockport Centre were extremely well received by the public. Stabilization of various buildings at Hecla continued, creating much interest by park visitors.

The 25th Anniversary celebrations for provincial parks were well attended at Hecla. Golf course use remained relatively constant despite the weather. Several commercial fishing demonstrations were

undertaken by island residents, drawing large numbers of park visitors to these events.

Wildlife
The extremely wet fall resulted in 391 complaints of waterfowl damage, with many complaints active until mid November. Timber wolf complaints numbered 16. A special effort by field staff resulted in the removal of 30 wolves from the agricultural area. Beaver-related problems were reduced to 17 this year. The current beaver policy which requires landowners, local government bodies and transportation companies to assume responsibility for beaver problems appears to have worked well in the Interlake Region.

There were 5571 hunters checked, with a 98% compliance rate experienced.

Enforcement
Incidents of night-lighting decreased considerably with a total of 20 charges being laid. There were 48 charges in 1984-85. Hunter effort was hampered during the deer hunting season by a 12" snowfall on the third day. Waterfowl hunters had a particularly productive season, with most achieving limits quickly. Several hunters who had exceeded their limits were detected by officers. Total prosecutions under all Acts for the year was 366.

Fire Programs
The region had a relatively quiet fire season due to favourable moisture conditions. A total of 37 fires occurred, burning 743 hectares. Training and upgrading for volunteer fire crews continued, as did upgrading for firetac crews stationed at Grand Rapids, Gypsumville and Hodgson. Two prosecutions were entered for burning without a permit during the year. The fire prevention message was communicated to 1,327 persons through the efforts of our patrolman.

Crown Lands
Eight illegal cabins in the region were removed either by the occupant or by officers.

Southeastern Region

Fisheries
Sport angling activity was average throughout the year with a total of 1,625 anglers checked.

Parks
Generally the season was relatively quiet with less camping activity than in previous years. A main event in the region was the 25th anniversary celebrations for provincial parks. Special activities were held at St. Ambroise, St. Malo and Stephenfield. Although the events were well planned, rainy weather resulted in lower attendance than anticipated.

Forestry
An extensive planting program was undertaken and 1.8 million pine and spruce were planted. Plantation thinning and stand improvement were conducted. There were 40 active timber sales, 570 fuelwood permits, 307 rail fence post permits, 47 lumber and pulp permits, as well as 23 general removal permits issued during the fiscal year.

Wildlife
There were 937 complaints respecting wildlife during the year compared with 878 in the previous year. The Winnipeg District animal control employee removed 245 nuisance animals of which 167 were raccoons. Due to wet weather and poor harvest conditions, waterfowl depredation increased over last year.

Big Game (deer, moose, bear) populations remained stable throughout most of the region. The deer population was extremely high within Winnipeg (over 500 animals), resulting in 112 deer killed in vehicle collisions. Staff participated in the removal of 114 deer from within the city limits. These were relocated to the St. Malo area.

Upland game bird populations remained low. Wild fur populations in the southeast portion of the region were fairly stable. Fisher, beaver and mink were the most sought-after species.

Enforcement
Aerial night hunting detection patrols resulted in 2 charges in 1985-86, compared with 34 charges in 1984-85. The decrease in charges can be attributed to extremely wet conditions and late crop harvest, as well as public exposure to the T.I.P. Program. Enforcement of the various Acts and Regulations resulted in 333 prosecutions and 144 written warnings. Natural Resource Officers checked 1,625 anglers, 1,800 deer hunters, 63 moose hunters, 35 bear hunters, 702 migratory bird hunters, 290 upland game bird hunters and actioned 1,402 occurrences.

Staff documented eight Wildlife and seven Fisheries illegal trafficking instances.

Fire Programs
Due to cool, wet weather conditions, only 12 fires were actioned. These fires burned 714 acres, consisting mainly of grass and non-merchantable timber. There were 256 burning permits and 29 work permits issued.

Whiteshell Region

Fisheries
A total of 2,134 anglers were checked with most angling activity taking place from May to July. Some one million walleye fry and eyed eggs were deposited in waters within the Hadashville District in early spring. Trout pond stocking was completed by early July.

Forestry
Twenty active timber sales operated during the year. In addition, 494 timber permits were issued, mostly for fuelwood.

Parks
Park use was generally light over most of the summer, with the exception of the long weekends. This was attributed to the adverse weather conditions experienced throughout the summer.

The 25th anniversary celebrations were very well received by the public.

There was heavy use of the snowmobile and cross-country ski trails within the region.

Wild rice harvesting began at the end of August, bringing many pickers from Shoal Lake because of the poor crops in that area. In the West Hawk Lake district, 50 hand-picking permits were issued, compared to 4 from last year. In the same district, there were 15 mechanical pickers on opening day.

Co-operative Project
A log cabin was constructed on the Falcon Lake trail, replacing the "Eight Mile Shack". This was a joint effort by the Manitoba Government, which supplied the material, and volunteer groups such as the Brereton Lake Cottagers, South East Trailriders, Brooks Ventures, and Snow Stompers from Winnipeg, who supplied the labour.

The Bannock Point Rehabilitation Program provided approximately 5,618 man-days during the year. Most of the work consisted of maintenance of the camp, brushing, cutting and splitting wood, strapping slabs, working in the nursery, and general clean-up in the park.

Vandalism in the region continued to be a problem, including broken signs, kicked-in hubcaps, broken windows, and damaged ice fishing shacks.

Wildlife
Thirty-six deer and two moose were killed on the roads, with the highest numbers occurring during June and July.

Deer hunting season was quite successful this year. A total of 833 deer hunters were checked, of which 93 were successful. One hundred and twenty eight moose hunters were checked, 26 were successful. There was low hunting pressure during the bear, wolf, and deer-archery seasons. The hunting pressure on upland game birds was moderate and populations appeared to be up from last year. Very low migratory game bird populations were noted.

There was one report of a cougar sighting in June in the Hadashville area.

Trappers in the region reported moderate to good success during the past season.

Enforcement
Enforcement effort in the region resulted in 284 prosecutions. In addition, 1,029 warning tickets were issued and 64 evictions were made from provincial park campgrounds. Most of these enforcement actions were related to liquor use. Staff also dealt with a total of 315 regulatory occurrences.

Fire Program
A total of 49 fires occurred during the year, burning 116.7 hectares (33.2 of which was forested area, and 83.5 hectares was grass area). Twenty-eight of these fires were related to railways, thirteen were human-caused, and eight were lightning caused. The fire towers were staffed from May to August, with greatest emphasis in July. Total fire suppression costs for 1985 were $112,132, as compared to $952,132 in 1984 and $283,274 in 1983.

Polar Bear Alert Program — Churchill

The Polar Bear Alert Program received 85 calls in 1985. The first call was received on April 2nd and the last call on December 5th. August and October were the most active months for bears in the Churchill area.

The ice was late breaking up on the Hudson Bay. In mid August, a large sheet of ice moved to an area just north of Churchill. When it started to break up, the bears came off the ice around the townsite. After August, the bears then moved south along the coast until October when they started to return northwards. Hudson Bay froze again on November 8th and allowed the bears to move out by mid November.

In 1985, new policy and procedure directives were implemented in response to concerns raised through the L.G.D. Council by Churchill residents. A new policy provided for the capture and removal of all bears that moved into the garbage dump area. Seventy-six bears were caught and moved in 1985, fifty-six of which were taken from the garbage dump area.

During 1984, a questionnaire was distributed by the L.G.D. of Churchill asking people about their concerns. This questionnaire led to a number of improvements to the polar bear management program. The

department resurveyed the situation in 1985 to see how the people felt about the improved program. The response was very positive.

Legislation Program

The branch assisted in the development and drafting of legislation for other branches and agencies. These included amendments to **The Wildlife Act, The Fires Prevention Act, The Provincial Park Lands Act, The Fisheries Act** and **The Ecological Reserves Act.** Regulations under **The Wildlife Act, The Provincial Park Lands Act, The Fisheries Act, The Canada Shipping Act** and Orders of the Minister under **The Manitoba Fishery Regulations** were also prepared and enacted.

Enforcement Programs

In 1985 the branch initiated an enforcement evaluation experiment. Its responsibilities included problem analysis, research, intelligence gathering and project development and co-ordination.

T.I.P. Program (Turn In Poacher Program)

On August 15th, 1985 the department launched the T.I.P. (Turn-in-Poachers) experimental project with the co-operation of the Manitoba Wildlife Federation. This experiment allowed public participation in resource enforcement programs by phoning a 24 hour response centre.

Public response was strong. The experiment was maintained live on a 24 hour basis seven days a week until mid December. Then calls received after 8:30 p.m. were recorded and monitored on tape during this low activity period.

A total of 418 calls had been received at fiscal year end resulting in 70 prosecutions and 21 warnings.

Officer Training Program

Emphasis was placed on upgrading the skills of Natural Resource Officers in all aspects of their work. In 1985-86, 21 different training programs for employees were conducted. They included topics such as cross cultural awareness, officer safety, self defence, and computer courses.

A new Natural Resource Officer field training program was also implemented. Seven trainees began a one year field orientation, employing the "buddy" system in order to facilitate ongoing evaluation of the trainee's progress.

Forest Fire Programs

General Fire Situation

The first man-caused fire of the season was reported by the Southeast Region on April 9th. The first lightning fire was reported from the Whiteshell Region on April 30th. There were 17 fires in April. The total number of fires reported and actioned during the season was 346 compared with the ten year average of 675. The reduced number of fires was attributed to above normal precipitation, with frequent rain shower activity at regular intervals.

The Lightning Location System was activated in mid-May. Three stations were operational. By month end the remaining four, including Thompson and Island Lake, were on line. Lightning activity accounted for 40% of the fires started.

Aircraft Operations

Prior to the beginning of the season, fourteen aircraft were contracted for fire suppression.

The CL-215 Waterbombers flew only 209.6 hours in total this season, utilizing 70 hours per aircraft, the lowest on record.

Casual hired aircraft were used to supplement contract machines to meet local conditions. Total casual use was 1,543.7 hours at a cost of $512,286, a record low.

The three helitac bases located within our highest priority forest reserves continue to be most effective in containing new fire outbreaks. This is evidenced by the fact that while the size of the average fire in the province was 17.9 ha this year, helitac actioned fires averaged only 1 ha.

Fire Prevention Activities

A reassessment of the effectiveness of the Fire Prevention Program was commenced.

During 1985 a fire prevention kit was designed for use in schools and distributed on a trial basis in northern communities. A new position, that of Native Fire Prevention Liaison Officer, was created to develop a program to prevent fires on Indian Reserves and the adjacent Metis communities.

Equipment Development and Suppression Techniques

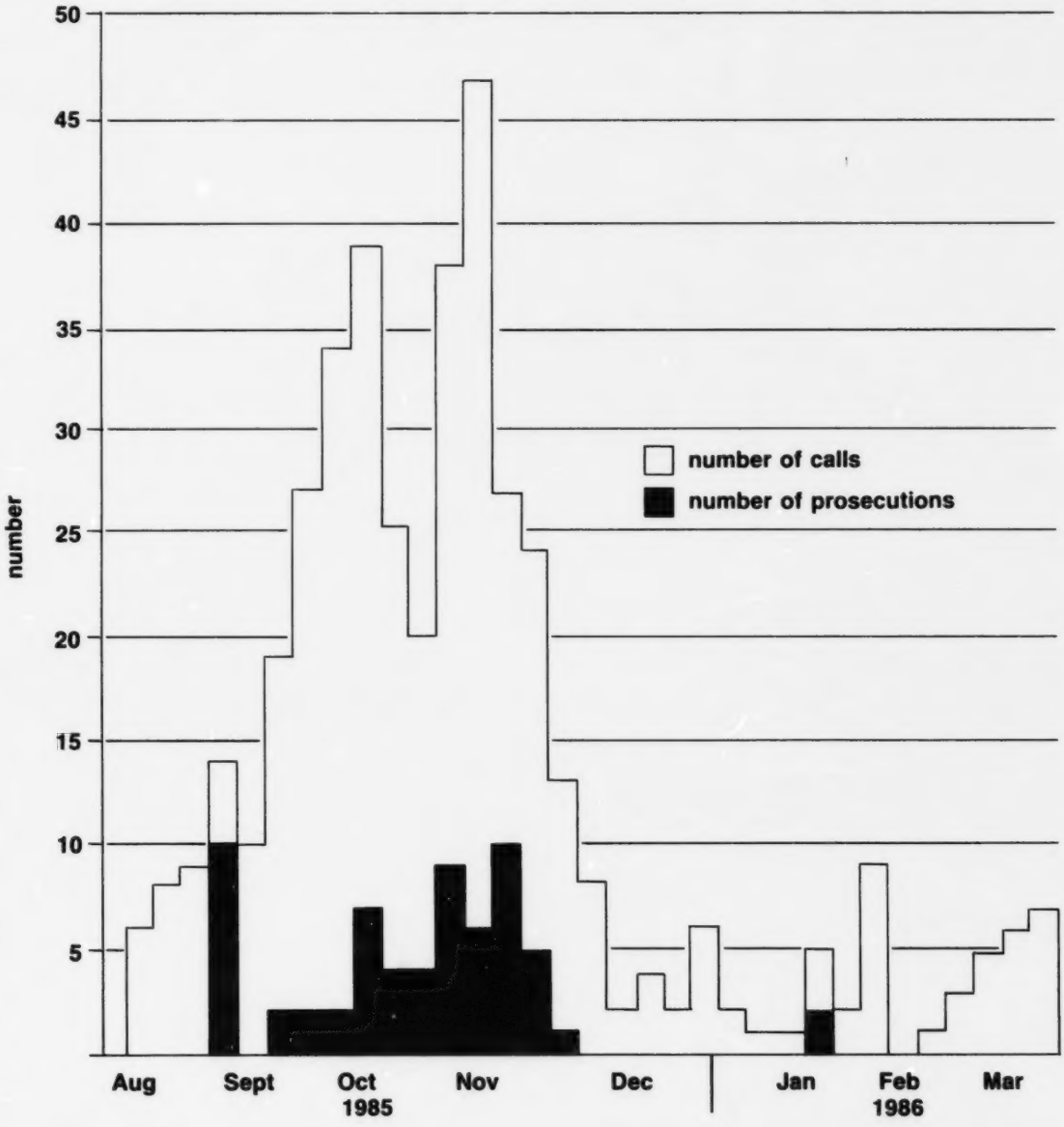
Additional facilities for fire hose maintenance were constructed. Considerable cost savings have been realized by extending the operational life span of hoses.

Six large semi-trailers were acquired for use as mobile fire equipment warehouses.

Training

Regional offices provided on-the-job training to the 133 firetac personnel, 70 helitac personnel and 129 fire rangers employed on a seasonal basis. The Northeast and Eastern Regions carried out a vigorous training program on Indian Reserves and other communities in their respective areas. The Fire Management Section also presented a course to 15 members of the Riding Mountain National Park staff.

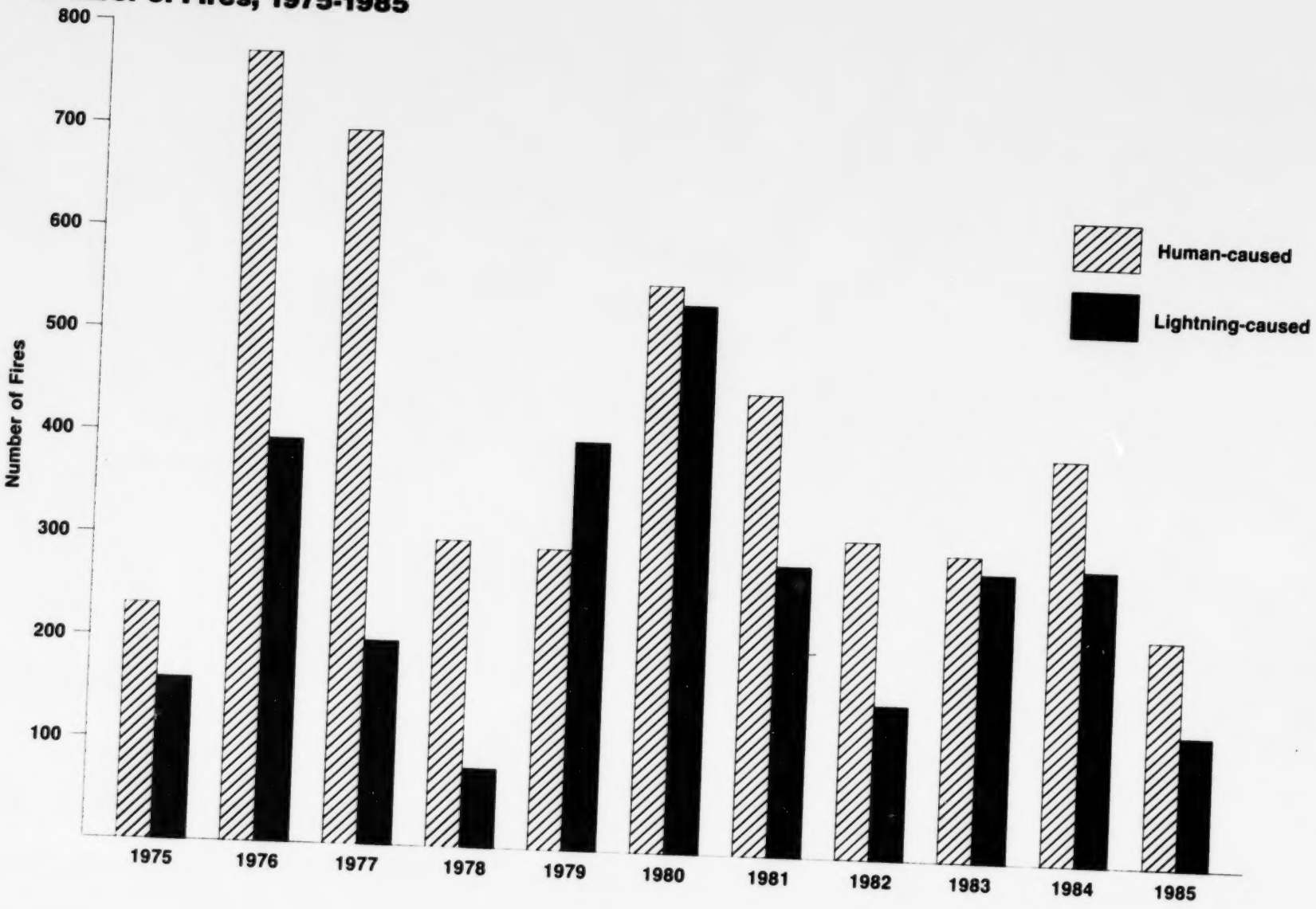
T.I.P. Calls and Prosecutions by Week



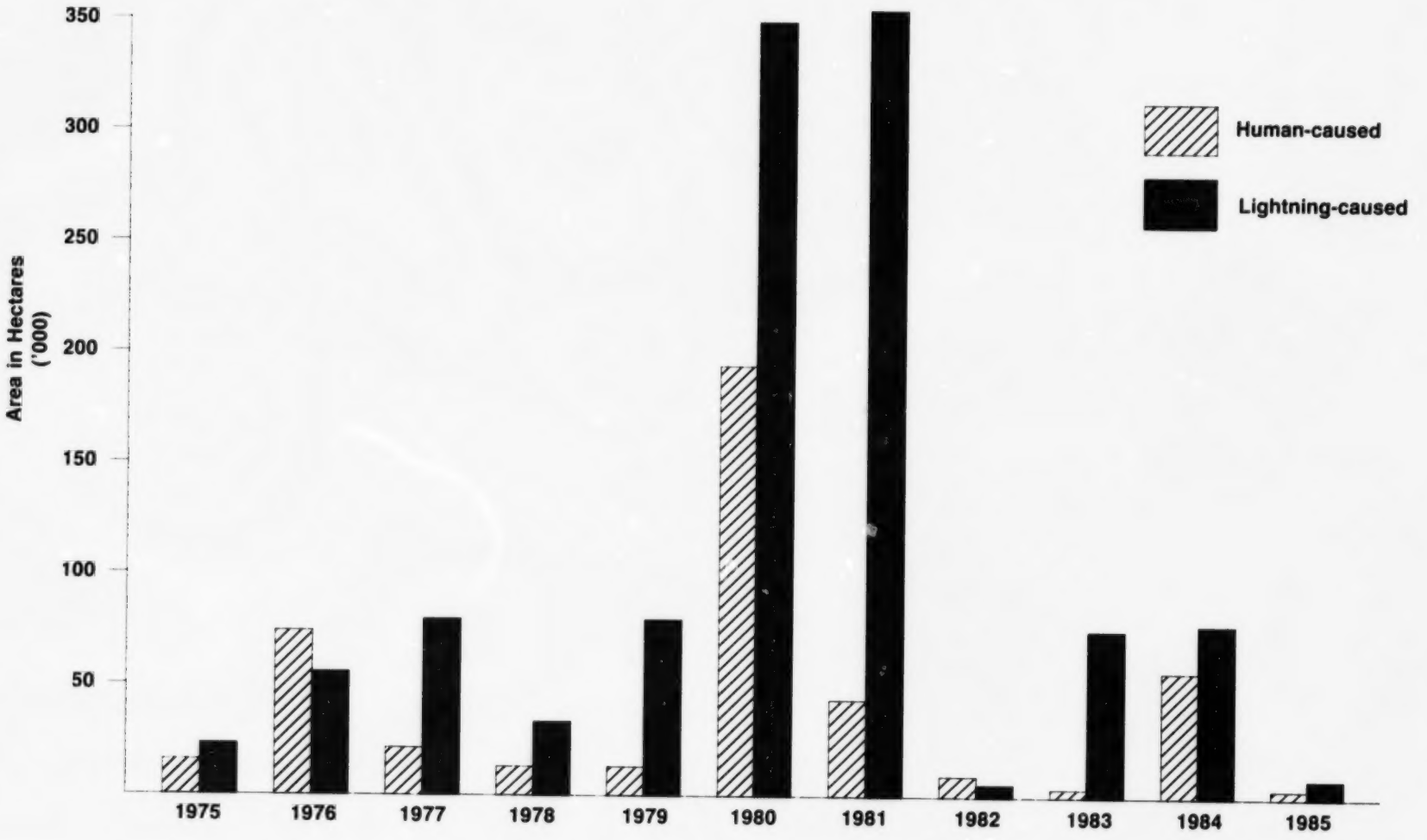
1985 Fires

Cause	Number of Fires		Percentage		Area Burned (Ha.)		Suppression Cost	
	1985	5-Yr. Avg.	1985	5-Yr. Avg.	1985	5-Yr. Avg.	1985	5-Yr. Avg.
Recreation	60	76	17.3	14.6	255.3	1,220.0	195,900.0	283,509.0
Settlement	59	97	17.0	17.9	817.1	2,971.5	126,950.0	251,106.0
Woods Operations	3	4	.8	.7	4.0	35.4	4,828.0	21,086.0
Other Industrial	3	5	.8	.9	25.1	98.8	7,859.0	27,061.0
Railways	30	22	8.6	4.5	16.4	1,206.4	54,044.0	112,201.0
Public Projects	9	10	2.6	.2	158.3	202.2	56,446.0	44,125.0
Incendiary	27	58	7.8	11.1	221.7	2,986.9	52,520.0	289,920.0
Miscellaneous	5	14	1.4	2.7	37.2	413.5	15,310.0	36,870.0
Agriculture	15	38	4.3	6.5	432.1	8,949.7	18,411.0	132,740.0
Human-caused	211	326	60.9	61.6	1,967.2	18,084.7	$ 532,268.0	$1,198,620.0
Lightning-caused	135	05	39.0	38.2	9,855.6	108,480.8	$1,102,000.0	$4,258,017.0
Total	346	532	100.0	100.0	11,822.8	126,565.4	$1,634,268.0	$5,456,638.0

Number of Fires, 1975-1985



Area Burned, 1975-1985



Other Programs and Activities

Other programs and activities administered by the branch included the Hunter Killed Livestock Compensation Program, the Hunter and Firearm Safety Program, the Bowhunting Training Program and the Guide Training Program. Summaries of each of these are provided in the following tables.

Livestock Compensation Program

Year	Claims			Payment		
	Received	Denied	Withdrawn	Paid	Average Paid	Total Paid
1979-80	5	4	0	1	$ 609.50	$ 609.50
1980-81	8	3	2	3	763.17	2,289.50
1981-82	21	10	0	11	572.73	6,300.00
1982-83	23	11	0	12	1,125.00	13,500.00
1983-84	26	15	1	10	1,051.80	10,518.00
1984-85	8	2	1	5	499.80	2,499.04
1985-86	6	5	0	1	$1,820.00	$ 1,820.00

Hunter and Firearm Safety Program

Calendar Year	Students	Total To Date	Instructors[1] Certified
1979	3846	74,242	47
1980	3905	78,147	51
1981	4641	82,788	63
1982	4460	87,248	45
1983	3315	90,563	58
1984	4150	94,713	47
1985	2977	97,690	38

[1] *There is a turnover of approximately 50 volunteer instructors each year. The program currently has approximately 400 active instructors.*

Firearm Accidents

Calendar Year	Accidents				Fatalities		
	Hunting	Non-hunting	Total	Average Age of Shooter	Hunting	Non-hunting	Total
1979	18	9	27	27.8	0	2	2
1980	9	13	22	28.4	1	2	3
1981	24	10	34	23.5	2	2	4
1982	13	7	20	27.1	0	1	1
1983	8	12	20	27.6	2	3	5
1984	13	3	16	26.1	2	0	2
*1985	12	14	26	24.4	1	0	1

**Prior to 1985, Treaty Indian firearm accidents were not included in accident totals.*

Bowhunting Training Program

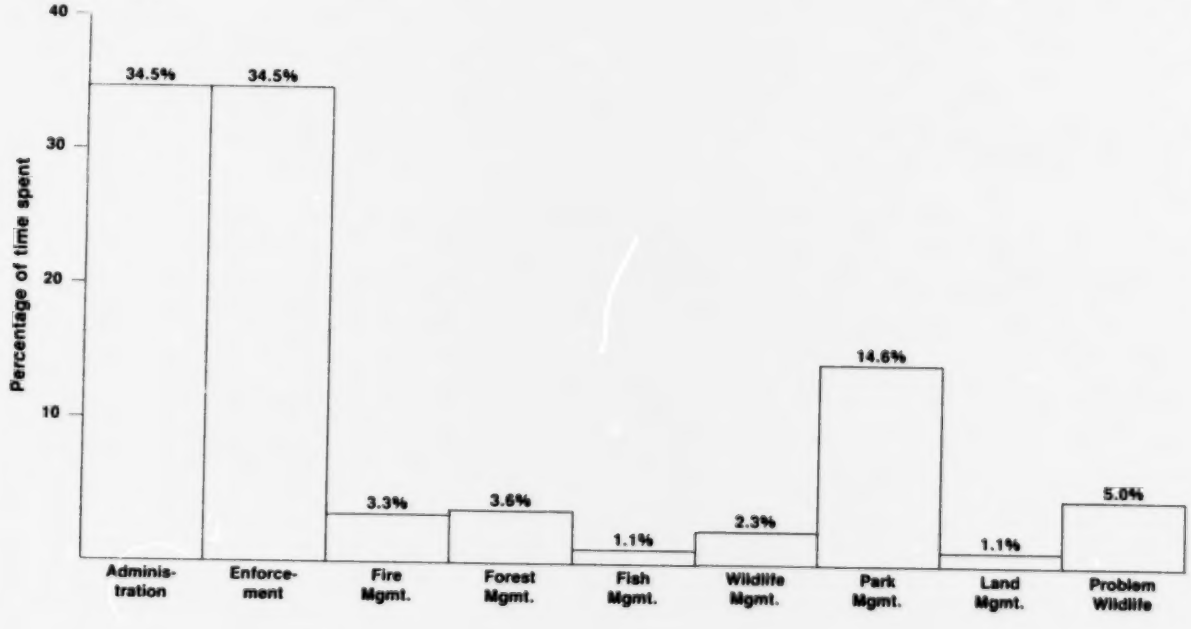
Fiscal Year	Students	Total to Date
1980-81[1]	74	74
1981-82	228	302
1982-83	76	378
1983-84	64	442
1984-85	34	476
1985-86	41	517

[1] *First year of voluntary Program*

Guide Training Program

Year	Number of Courses	Guides Trained	Total To Date	Licences Issued
1979-80	5	116	429	558
1980-81	5	87	516	610
1981-82	5	112	628	615
1982-83	4	91	719	775
1983-84	5	97	816	753
1984-85	1	21	837	937
1985-86	1	19	856	970

Natural Resource Officer Provincial Time Distribution Chart, 1985-86



Distribution of Officer Time Expended on Problem Wildlife, 1985-86

Problem Wildlife Occurrences, 1985-86

Species	Region								Species Total	Per Cent of Total
	NE	NW	SE	SW	E	Int.	W	WH		
Beaver	12	16	113	269	24	69	421	32	956	27.3
Black Bear	36	38	31	21	75	28	72	79	380	10.8
Polar Bear	89	1	—	—	—	—	—	—	90	2.5
Elk	—	—	2	18	1	16	57	—	94	
Moose	—	—	2	—	1	—	2	—	5	8.8
Deer	—	—	70	77	15	33	14	2	211	
Wolf	12	8	3	7	—	33	18	1	82	2.3
Coyote	—	3	15	35	5	34	11	1	104	
Fox	7	3	11	4	1	13	8	—	47	4.3
Waterfowl	—	57	71	432	5	349	122	3	1,039	29.7
Other Fur	—	2	146	5	6	9	8	6	182	5.2
Other Protected	2	1	30	21	4	27	18	4	107	3.1
Unprotected	—	17	81	24	18	26	29	11	206	5.9
Total	158	146	575	913	155	637	780	139	3,503	100.0

Summary of Recorded Violations, 1985-86

Legislation Contravened	Disposition							Total Offences	Percent Increase or Decrease[1]
	Prosecutions						Written Warnings		
	Guilty	Dismiss	Stay	Withdraw	Adjourn	Total			
Wildlife	522	16	147	1	—	686	188	874	+17
Liquor Control	695	3	8	3	—	709	154	863	-5
Fisheries	411	11	28	2	—	452	384	836	-3
Provincial Park	210	2	11	3	—	226	240	466	-28
Highway Traffic	98	1	14	2	—	115	89	204	-29
Migratory Birds	68	7	8	—	—	83	30	113	+95
Forest	8	—	—	—	—	8	55	63	+24
Snowmobile	16	1	3	—	—	20	17	37	+28
Clean Environment	17	—	—	—	—	17	14	31	-18
Fire Prevention	14	—	—	—	—	14	15	29	-60
Petty Trespass	3	—	—	—	—	3	19	22	+47
Criminal Code	5	—	13	—	—	18	—	18	-28
Crown Lands	1	—	2	—	—	3	7	10	-17
Wild Rice	3	1	1	—	—	5	4	9	+200
Canada Shipping	3	—	1	—	—	4	2	6	+100
TOTAL	2074	42	236	11	—	2363	1218	3581	-5
	3581								

Fines: $197,549.50 (-0.1%)
Costs: $33,287.75 (-2%)
Warnings: 1218 (-17%)
Prosecutions: 2363 (+3%)

[1] *As compared to the previous fiscal year, 1984.*

Most Common Violations Under The Wildlife Act, 1985-86

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warn	Total
Loaded Firearm	108	—	1	—	—	8	117
Nightlighting	87	2	21	—	—	6	116
Hunt on Private Land w/o Permission	46	2	29	—	—	12	89
Possess Illegally Taken Animal	39	1	33	1	—	4	78
Hunt From Vehicle	29	4	3	—	—	25	61
Hunt Out of Season	22	1	15	—	—	9	47
Other	191	6	45	—	—	124	366
TOTAL	522	16	147	1	—	188	874

Total Fines: $98,360.00 (-3%)
Average Fine: $188.43 (-14%)
Total Costs: $16,629.75 (-6%)

Most Common Violations Under The Liquor Control Act, 1985-86

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warn	Total
Unlawful Possession of Liquor	676	3	8	2	—	152	841
Unlawful Possession by Minor	10	—	—	1	—	1	12
Supply Liquor to Minor	5	—	—	—	—	—	5
Obstruct Officer	3	—	—	—	—	—	3
Consume in Public Place	1	—	—	—	—	1	2
TOTAL	695	3	8	3	—	154	863

Total Fines: $42,970.50 (−7%)
Average Fine: $61.83 (+5%)

Total Costs: $8,550.50 (−6%)

Most Common Violations Under The Fisheries Act (Canada), The Freshwater Fish Marketing Act and The Fisheries Act (Manitoba), 1985-86

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warn	Total
Sport Fish:							
Fail to Carry/Produce Licence	19	1	3	1	—	193	217
Sportfish without Licence	115	—	6	—	—	30	151
Angle with Too Many Lines	46	4	3	—	—	10	63
Exceed Limit	36	—	—	—	—	5	41
Transport Unidentifiable fish	7	—	—	—	—	33	40
Fish within 25 Yards of Fishway	21	—	1	1	—	15	38
Unattended Line/Fish	13	—	—	—	—	7	20
Commercial fish:							
Commercial Fish Without Licence	21	—	3	—	—	1	25
Small Mesh Nets	14	1	1	—	—	9	25
Fail to Comply With Permit Conditions	13	—	1	—	—	2	16
Decayed Fish	13	1	1	—	—	—	15
Fail to Mark Equipment	6	—	1	—	—	5	12
General/Domestic Fish:							
Fish/Possess Fish Other Than In Accordance With Act/Regulations	26	1	7	—	—	27	61
Fish During Closed Season	27	—	—	—	—	3	30
Fish/Possess Fish w/o Lawful Reason	13	—	1	—	—	1	15
Other	21	3	—	—	—	43	67
TOTAL	411	11	28	2	—	384	836

Total Fines: $27,976.00 (−3%)
Average Fine: $68.07 (+1%)

Total Costs: $3,117.00 (−21%)

Comparison of Wildlife[1] and Fishery[2] Prosecutions, Regional Services Branch, 1976/77 to 1985/86

Fiscal Year	Wildlife	Fishery
1976-77	463	315
1977-78	698	276
1978-79	804	321
1979-80	782	370
1980-81	438	446
1981-82	897	597
1982-83	557	475[3]
1983-84	634	555[3]
1984-85	602	475[3]
1985-86	769	452[3]

[1] *Includes violations under* ***The Wildlife Act*** *and* ***The Migratory Birds Convention Act.***
[2] *Sportfish violations only are shown for 1981/82 and earlier.*
[3] *Includes* ***The Fisheries Act (Canada)*** *and* ***The Fisheries Act (Manitoba).***

Most Common Violations Under The Provincial Park Lands Act, 1985-86

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warn	Total
Unauthorized Fire	38	1	—	—	—	14	53
Operate Vehicle in Non-designated Area	16	1	2	—	—	22	41
Illegal Parking	12	—	1	—	—	17	30
Damage/Deface Park/Public Property	17	—	—	—	—	12	29
Noisy/Dangerous Vehicle Operation	7	—	2	—	—	7	16
Possess Weapon w/o Permit	8	—	—	—	—	6	14
Other	112	—	6	3	—	162	283
TOTAL	210	2	11	3	—	240	466

Total Fines: $14,995.00 (+165%) Total Costs: $2,850.50 (+160%)
Average Fine: $71.40 (+22%)

Most Common Violations Under The Highway Traffic Act, Regional Services Branch, 1985 Fiscal Year

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warn	Total
Speeding	7	—	1	2	—	22	32
No/Improper Helmet	15	—	—	—	—	5	20
Disobey Traffic Control Device/Signal	9	—	1	—	—	10	20
Imprudent Driving	8	1	1	—	—	8	18
Unregistered Vehicle	8	—	—	—	—	10	18
Ride in Unsafe Manner	4	—	—	—	—	9	13
Other	47	—	11	—	—	25	83
TOTAL	98	1	14	2	—	89	204

Total Fines: $5,052.00 (−32%)
Average Fine: $51.55 (−6%)

Total Costs: $906.00 (−21%)

Resource Allocation and Planning

This branch directs an integrated and co-ordinated approach to natural resources allocation and planning; plays a lead role in allocation and planning of Crown land; administers the department's ecological reserves program; assists in providing a comprehensive outdoor recreation and tourism program; formulates and reviews broad departmental program strategies.

The Resource Allocation and Planning Branch provided a departmental action centre for a broad range of natural resource issues that impact upon more than one branch of the department. Through several allocation processes co-ordinated by the branch, the land base of the province was designated with appropriate caveats for different uses. (These may include agriculture, forestry and recreation, along with other single and integrated uses).

Land Use Planning

Three major interdisciplinary land use plans were prepared for Northern Manitoba.

Summary of Activities

Area	Status	Comments
Flin Flon Periphery	Progressing	Initial draft was completed for interdepartmental review.
Churchill Region	Progressing	Branch an active member of the planning task force; final recommendations under consideration.
East Side Lake Winnipeg	Progressing	Departmental plan being broadened by an interdepartmental task force.

In southern Manitoba, the Crown Land Classification Committee drafted three provincial Crown Land Plans, began preparation of eight others, and undertook four special studies. Work on two other plans was temporarily suspended during the year.

Summary of Activities: Crown Land Classification Committee

Area	Status	Comments
Washow-Fisher Peninsula Land Use Study	Draft plan under review	Background report published; economic study completed
Catfish Creek Land Use Study	Draft plan under review	Draft background report prepared
Lac du Bonnet Planning District	Draft plan under review	
Lake of the Prairies, RM Shellmouth, Roblin Planning District	Plan initiated	
RM Woodlands	Plan initiated	
Northern Interlake	Plan initiated	
Saint Lakes	Plan initiated	

Area (continued)	Status	Comments
RM Winchester and Morton-Boissevain Planning District	Plan initiated	Request from Heritage Marsh Advisory Committee
RM Silver Creek	Plan initiated	Request from Heritage Marsh Advisory Committee
RM Sifton	Plan initiated	Request from Heritage Marsh Advisory Committee
LGD Armstrong	Plan initiated	Request from Heritage Marsh Advisory Committee
Swan-Pelican	Study initiated	Proposed provincial forest/ park/wildlife management area
Mars Sand Hills	Study initiated	Recreation study
LGD Fisher	Study initiated	LGD lands plan
LGD Armstrong	Study initiated	LGD lands plan
Selkirk and Area Planning District	Revising draft plan	In abeyance during 1985-86
RM Swan River draft plan	Reviewing	In abeyance during 1985-86

The Crown Land Classification Committee also reviewed proposals for the establishment of new wildlife management areas, ecological reserves and provincial parks and forests. The committee considered 45 agricultural Crown land sales, recommending the sale of 22 parcels and the disapproval of 23. Additionally, 24 appeals were considered and actioned. Twenty Crown land exchanges were approved and 45 rejected.

The yearly update of the committee's **Interdepartmental Operational Crown Land Plans** report was completed along with revision of its **Policy and Procedures Manual**. The committee also initiated a program to input its land use codings into the department's Crown land registry.

During the year, the branch processed through the clearance procedure 48 parcels of Crown land requested for sale under the Agricultural Crown land sale program. Four parcels of Crown land were processed under the LGD/Crown land exchange program.

The **Crown Lands Handbook for Agro-Manitoba**, which contains location maps showing Crown lands in southern Manitoba, was updated to the end of 1985.

Work continued on lake management strategies for Athapapuskow and Kississing Lakes. Strategy development was initiated for Granville Lake.

The branch also co-ordinated the preparation and presentation of the department's needs and priorities for soil surveys to the interdepartmental Soil Survey Advisory Board.

Heritage Resource Conservation

The Resource Allocation Branch is charged with the responsibility to preserve unique, rare and representative examples of Manitoba's ecological areas through the provincial ecological reserves program.

An important element contributing to the success of the program has been the Ecological Reserves Advisory Committee, composed of members of the public and civil servants. The branch's activities are tied in with those of the Canadian Council on Ecological Areas and with those of the newly formed Riding Mountain Biosphere Reserve Technical Advisory Committee.

Activities during the year concentrated on identification of candidate areas for consideration as ecological reserves and upon the establishment of additional reserves. Fourteen areas occupying approximately 3,600 ha were inspected by staff and subsequently reviewed by the Ecological Reserves Advisory Committee. Five areas occupying about 1,500 ha were considered worthy of further consideration. One of these areas occupying 145 ha received Ecological

Reserve status and was designated by Cabinet as the Whitemouth River Ecological Reserve. Further consideration will be given to the remaining areas following more detailed biological investigations.

The Whitemouth River Ecological Reserve is located in the southeast area of the province about 24 km north of Whitemouth Lake. It adds an undisturbed area of mixed deciduous and coniferous forest containing riverbank and lowland forest communities to the ecological reserves system. This reserve also includes a portion of the Whitemouth River and adjacent bogs.

The ecological reserves system now contains seven areas occupying approximately 15,600 ha of land and water. Protected areas include bog lakes and bogs supporting moisture loving plant communities, coarse sand hillsides where jack pine, lichens and other drought tolerant plants dominate and areas of mature and immature mixed forest.

The Ecological Reserves Act was reviewed and a need to improve its enforcement capability identified. An amendment was recommended to the Minister by the Ecological Reserves Advisory Committee and passed by the legislature thus strengthening the Act and the program. In keeping with the purposes of **The Ecological Reserves Act** regarding educational and aesthetic benefits to the public, Ministerial Orders were signed permitting access to selected reserves by persons on foot.

Outdoor Recreation

The Resource Allocation branch advises and assists in providing a comprehensive outdoor recreation strategy when required in provincial or regional planning. It implements the provincial land use policy on safeguarding of scarce recreation and scenic resources, provides site-specific outdoor recreation management plans and develops policy guidelines for outdoor recreation developments on Crown lands.

Outdoor recreation assessments and evaluations were prepared for reports relating to the Manitoba Environmental Assessment and Review Process, to Crown land allocation and to municipal planning. The branch also provided guidance to the development of policy alternatives dealing with private development of Crown lands having recreational value.

As the department's representative on the interdepartmental Rail Line Abandonment Committee, the branch co-ordinated the review of all abandoned rail lines and station grounds. Work was started to develop a provincial recreational trail system and to resolve problems associated with the possible use of abandoned rail lines as portions of the system. Particular attention was given to the Edwin to Brandon Junction and Russell to Saskatchewan border lines.

Tourism

In 1985-86, the branch contributed to the York Factory Regional Integration and Tourism Task Force. The group included representatives from the federal and Manitoba departments that were working together on a framework for developing the tourism potential of the Churchill/Gillam/York Factory area, and the York Factory National Historic Site. Plan alternatives have been identified and, following public consultations, a final plan is expected by late 1986.

As the department's representative on the Licensing Advisory Committee of the Department of Economic Development and Tourism, the branch reviewed approximately 110 applications for lodges, outcamps and boat, motor and fuel caches throughout the province, and made recommendations on the basis of availability of natural resources to meet the demands of the particular tourism industry. These reviews were carried out in concert with other branches of the department.

Environmental Quality

Resource Allocation continued to be concerned with maintaining and enhancing the Manitoba environment. Activities were co-ordinated with those of other branches of the department and of other departments of government through various committees, task forces and working groups.

Departmental position papers were prepared on rivers and streams legislations and on wetland preservation. A status report on provincial actions related to the **World Conservation Strategy** was assembled by an interdepartmental task force composed of representatives of the departments of Environment and Workplace Safety and Health, Agriculture, Municipal Affairs and Natural Resources. The province was host to a federal/provincial workshop for reviewing a working draft of the National Progress Report on the World Conservation Strategy that will be tabled at an international conference in Ottawa in June, 1986.

Departmental positions respecting impacts of major developments on natural resources were prepared for a possible potash development in western Manitoba, the Limestone generating stations on the Nelson River and for several power lines, new roads and water

control schemes throughout the province. Impact management recommendations were designed to maintain and enhance natural resources and the environment associated with each development.

Sustainable Resource Management

The Provincial Land Use Policies and departmental objectives provide the foundation for the positions advanced by the department in the development of municipal and planning district planning schemes.

Five "Natural Resources Planning Reports", were initiated during the year. In addition, the branch co-ordinated the assessment and evaluation of four draft municipal planning statements, three draft development plans and one background report, and participated in the department's review process for proposed subdivisions of land.

Natural Resources Planning Reports; 1985-86

Planning Authority	Area	Status
Birtle Council	Town of Birtle	Report initiated
Russell-Binscarth Planning District	RM Russell	Report initiated
Roblin Planning District	LGD Park (North)	Report initiated
Del-Win Planning District	RM Winchester	Report initiated
Souris-Glenwood Planning District	RM Glenwood	Report initiated

Surveys and Mapping

This branch administers ***The Surveys Act*** *(Part II); provides legal land descriptions for permits and leases under various provincial acts; administers all provincial geographical names; conducts land surveys as required by government agencies; implements and maintains a provincial system of legal and control surveys; provides a geocoding base for computer land information systems; provides a drafting service for survey plans and produces topographical and geographical maps; provides routine and custom photomechanical services; maintains a map distribution system, air photo library and remote sensing centre.*

Land Description Services

Legal land description and liaison services were provided for all Crown land transactions such as plans of subdivision, land or mineral exchanges, the Agricultural Crown Land Sales Program and for permits and leases under **The Crown Lands Act** and **The Mines Act**. The branch also provided Consents and Orders of the Minister under **The Municipal Act** and **The Municipal Board Act**.

Activity	1984-85	1985-86
Requests for service from government and private sources	838	637
Legal Descriptions prepared	810	651
Area calculations	46	81
Right-of-Way Agreements	31	25
Survey Requirements	10	24
Ducks Unlimited Agreements	8	11
Mines and Minerals Reports	30	34
Consents and Orders of the Minister	36	43

Manitoba Geographical Names Program

The protection, conservation and standardization of geographical names remain the primary objectives of the Manitoba Geographical Names Program. Highlights during 1985-86 included participation in planning a Canadian Native Names Symposium, establishing principles and procedures for the treatment of names shared by Canada and the United States, discussions on the translation and treatment of French language names, preparation of amendments to the 'Principles and Procedures' of the Canadian Permanent Committee on Geographical Names, and employment of an Affirmative Action Summer Student for entering data into the 'Geographical Names of Manitoba' publication file.

Liaison with government branches and departments continued through research assistance, naming features for resource identification and editing of maps, texts and related documents.

Activity	1984-85	1985-86
Requests for Toponymic Data	865	780
Geographical Name Decisions	63	110
Mapping Manuscripts/ Publications edited	103	34
Supplementary Name Location Maps compiled	63	36
Commemorative Names Certificates issued	302	417

Legal Surveys

This section continued its retracement of the Township Land Survey System and provided a legal survey service to various provincial agencies.

This included the preparation of plans of subdivision, rights-of-way and parcels and assistance in boundary identification. All surveys that could not be undertaken in-house were contracted to the private sector. Staff prepared the instructions for and examined all such surveys of Crown land.

Activity	1984-85	1985-86
Crown Land Plans Examined	70	81
Survey System Retracement	210km	190km
Survey System Maintenance	180km	140km
Water Control Projects	90km	96km
Residential and recreational Lots Surveyed	100	145
Miscellaneous Surveys	35	16

Control Surveys and Topographic Mapping

Control Surveys

This unit is responsible for establishing a geodetic survey system to support mapping and the geographical referencing of land-related information. One hundred and twenty-five stations were integrated with

the Township Land Survey System and an additional 65 stations were prepared for measurement in 1986-87.

Other activities included the completion of all field operations in support of the Souris Test Project. This project was designed to evaluate the feasibility of utilizing photogrammetric technology to maintain the survey system for mapping and land information purposes.

Computer Services and Data Management

This section continued to provide computer services and programming support for major surveying and mapping activities.

Three hundred new control survey stations in the Winnipeg area were integrated with existing survey networks, as were 400 township corners in the Township Land Survey System and 250 stations in rural Manitoba.

The computation of positional data for the land survey system in the province continued with 17,500 points being computed to facilitate property boundary mapping in urban centres.

The evaluation of all provincial survey networks continued, with completion of the North American redefinition expected by mid 1986 and provincial network integration of approximately 5,000 existing stations scheduled for completion by mid 1987.

In 1985-86 there were 249 requests for positional data and related information from all levels of government, industry and the public.

Topographic Mapping

The first phase of the conversion to a digital (computerized) mapping operation was realized with the installation of a WILD TA2 high-speed precision plotter and the initiation of a staff training program.

In the large scale mapping program, provincial standards and specifications were prepared for 1:1,000 mapping. Compilation was completed for 21 map sheets covering the Charleswood/Westwood (8) and St. Norbert (13) areas of the City of Winnipeg. As well, half-metre contours were compiled for 19 existing 1:2,000 scaled map sheets of the Virden (7) and The Pas (12) areas. Approximately 60% of the cartographic work was completed for these projects.

In the medium scale mapping program, provincial standards and specifications were prepared for 1:10,000 mapping.

Positional information was generated from three separate levels of aerial photography utilizing photogrammetric technology as part of the Souris Test Project designed to evaluate this methodology for survey system maintenance.

Geographic Mapping

In the cartographic unit 338 individual projects were completed for public and government needs, including resource identification, recreation, land disposition and surveys.

Major projects included 74 Electoral Division Maps with Polling Division overprints, five Provincial Forest Plans, nine maps and profiles for the Kenora Ground Water Study, and one Forest Tower Map.

Revisions were made to the Map Index, the Provincial Survey System Index Map, Resource Guideline Fire Maps, the Forest Protection Lightning Strikes Map, three Manitoba Hospital Maps, the Oak Hammock Marsh Brochure, nine Designated Vehicle Route Maps, Municipal and Local Government District Maps and the Canoe Route Index Map.

Plan Drafting Unit

Drafting Products	1984-85	1985-86
Plans of Survey	99	128
Township Diagrams	16	8
Plan Revisions and Memorials	351	255

Map Distribution and Remote Sensing

Map sales outlets operated out of government offices in Portage la Prairie, Brandon, Dauphin, The Pas and Thompson. In addition, maps could be purchased at 42 outlets in private business operations. Some 51,522 maps in total were distributed during the year.

There were 19,152 aerial photographs added to the Air Photo Library bringing its total stock to 700,000 photographs. For anyone wishing to use these valuable resources, which date from 1923 to present, browsing facilities were made available and duplicate prints provided on request. Considerable use was made of the library as witnessed by the 3,514 reproduction requests which generated a record 44,000 prints.

The Photo-mechanical Unit maintained a fully equipped lab which processed many of the photo products to the Air Photo Library's customers. Special services were also provided for mapping programs carried out by the Surveys and Mapping Branch and other government departments. The staff distributed 31,205 air photo and map related products.

The Remote Sensing Centre, established in 1973 to monitor and co-ordinate the development of remote sensing technology in the province, has developed technical expertise and acquired equipment to meet the needs identified by resource personnel.

Software developments and improvements combined with the acquisition of an ink jet colour plotter increased the capacity to carry out project work. The products, produced utilizing satellite data and image analysis techniques, were widely used by natural resource managers. Project work, using remote sensing technology was carried out for applications in agriculture, forest fuel type mapping, lake inventories for wild rice development, wildlife habitat mapping, conservation districts management and management planning of provincial parks.

The completion of 37 projects in 1984-85 and 21 in 1985-86 indicated that the centre has shifted from its co-ordinating role to an operational role in its second decade of operation.

Water Resources

This branch provides short- and long-term planning for the management and development of water resources in Manitoba; plans and develops construction and maintenance programs for provincial water-control works; conducts studies and investigations related to the management and use of the water resources in the province; administers several water-related Acts, including ***The Water Rights Act*** *and* ***The Water Power Act****; and provides engineering services to municipal councils and conservation district boards.*

Water Management Services

Water Licensing and Approvals

The construction of Manitoba Hydro's Limestone Generating Station Project on the Nelson River resumed in 1985. The General Civil Contractor began work by repairing and de-watering the cofferdam, and excavating approximately 1 million cubic metres of rock. The Sundance townsite was re-commissioned, and the work camp for the project was extended. Contracts were let for the supply of turbines and generators, reinforcing steel and cement.

Approvals

Waterway Opening Investigations	768
Crown Land Use Investigations	432

Hydroelectric Power Generation

	1984	1985
Water Power Rentals (Rates were increased on April 11/85)	$11,473,192.25	$16,193,828.60
Land Rentals	473,082.38	473,082.38
Total	$11,946,274.63	$16,666,910.98
Total Power Production (Kilowatt-hours) Associated with the Above Charges	21,312,863,660	22,498,838,500

Water Supply for Existing Power Developments

River	Average Flow	% of Long-term Average
Winnipeg River (Slave Falls)	1390 m^3/s	164.9%
Nelson River (Kelsey)	1990 m^3/s	80.2%
Saskatchewan River (Grand Rapids)	479 m^3/s	60.1%

Lake	Approved Range	Levels		Outflows	
		Low	High	Low	High
Lake of the Woods	321.9 m to 323.5 m	March 322.43 m	July 323.40 m	Jan. 348 m^3/s	July 1240 m^3/s
Lac Seul*	353.0 m to 357.2 m	April 354.44 m	July 357.11 m	Apr. 38.1 m^3/s	June 631 m^3/s

**The flow into Lac Seul through the Lake St. Joseph Diversion averaged 54.9 m^3/s in 1985.*

Requests for Use of Crown Land, 1985-86

Nature of Requests	Requests	Parcels Involved
Lands within Water Power Reserves	100	103
Lands within the Operation of Water Power Licences	37	39
Crown Land Outside of Water Power Reserves/Licences	174	290
Total	311	432

Water Power Development to December 31, 1985

Owner	River	Plant Name	Normal Head in Metres	Installed Capacity in Megawatts	
				Present	Ultimate
City of Winnipeg	Winnipeg	Pointe du Bois	14.02	78.33	78.33
City of Winnipeg	Winnipeg	Slave Falls	9.14	71.62	71.62
Manitoba Hydro	Winnipeg	Seven Sisters	18.59	149.20	149.20
Manitoba Hydro	Winnipeg	Great Falls	17.07	125.33	125.33
Manitoba Hydro	Winnipeg	Pine Falls	11.28	85.05	85.05
Manitoba Hydro	Winnipeg	McArthur	7.01	59.68	59.68
Manitoba Hydro	Laurie	No. 1 Site	16.76	5.22	5.22
Manitoba Hydro	Laurie	No. 2 Site	16.76	5.22	5.22
Manitoba Hydro	Nelson	Jenpeg	7.32	167.10	167.10
Manitoba Hydro	Nelson	Kelsey	15.24	219.32	313.32
Manitoba Hydro	Nelson	Kettle	30.02	1,253.28	1,253.28
Manitoba Hydro	Nelson	Long Spruce	24.38	1,007.10	1,007.10
Manitoba Hydro	Saskatchewan	Grand Rapids	38.10	447.60	447.60
Total				3,674.05	3,768.05

Undeveloped Water Power, 1985-86[1]

(in Continuous Megawatts at 88% Efficiency)

River	95% of Time	50% of Time
Berens	5.22	17.16
Burntwood	394.04[2]	512.20[2]
Churchill	102.95[2]	138.76[2]
Gods	26.11	43.27
Grass	5.22	19.40
Hayes	2.24	8.95
Kanuchuan	14.92	23.87
Laurie	1.49	2.24
Nelson	1,817.03[3]	3,042.11[3]
Pigeon	15.66	40.28
Seal	123.09	347.63
Total	2,507.97	4,195.87

[1] The figures represent the amount of power which could be available continuously on the indicated bases, and do not include developed or undeveloped power available at the Jenpeg, Kelsey, Kettle and Long Spruce sites on the Nelson River, or at Sites No. 1 and 2 on the Laurie River. If fully developed, the total installed capacity of the above rivers would considerably exceed the figures. The undeveloped water power resources are estimated to be slightly more than 2,500 continuous megawatts, at 95% flow. The major water power rivers are located in the northern part of the province.

[2] With Churchill River Diversion.

[3] With Churchill River Diversion and Lake Winnipeg Regulation.

Activities in Administering The Water Rights Act, 1985-86

	Surface Water	Groundwater
Number of Applications	79	29
Number of Complaint Investigations	8	2
Number of Site Visits	92	174
Number of Licences Issued:		
Domestic (including Stock Watering)	2	2
Municipal	0	14
Industrial (including mining operations)	2	2
Irrigation (including wild rice production)	32	10
Air Cooling and Heating	0	4
Recreation	0	1

Provincial Water Management

Reservoir Regulation

All major reservoirs were replenished by the 1985 spring runoff. The manually or mechanically controlled dams were operated to maintain reservoir levels within their normal ranges. Lake Manitoba remained within the permissible regulated range of 247.15 m to 247.76 m. Dauphin Lake peaked at 260.57 m following the spring runoff and fluctuated near the upper limit of 260.39 m for the rest of the year. Lake of the Prairies was drawn down to 422.80 m prior to spring runoff and peaked at 428.69 m in May 1985.

Fairford Dam/Lake Manitoba Regulation

The Fairford Dam is used to maintain Lake Manitoba between 247.15 m and 247.76 m. The current target level is 247.55 m. Although a lower target level would result in additional native hay land being available to area farmers in an average year, the social and economic values of the lake for recreation, fish and wildlife would be reduced.

To assist the Manitoba Water Commission in its study of Lake Manitoba, the Water Resources Branch provided several years of background correspondence, updated a cost estimate for implementation of a proposal for controlling the outflow from Lake Winnipegosis, and updated the costs of several alternative schemes to alter water levels downstream of the Fairford Dam.

Dauphin Lake Regulation

The Manitoba Water Commission recommended that "The upper control level of Dauphin Lake should be raised to 855.3 feet (260.7 m) a.s.l. [from its current full supply level of 260.39 m] and the lower control level should remain at 853 feet (260.0 m) a.s.l. — the minimum draw down level to accommodate spring runoff." Also recommended were measures to better control inflow, siltation and outflow. The rationale is to preserve the lake and realize the greatest benefit for the greatest number of people taking into account the agricultural, recreational, wildlife and fisheries issues involved.

Raising the lake without providing additional outlet capacity along the Mossy River channel will result in sustained flooding on lands situated between 260.39 m and 260.70 m. Occasional flooding will also occur on lands above 260.70 m as a result of wind setup. Of two schemes designed to increase the outflow capacity, it was determined that the more practical and cost effective scheme would be to clean out approximately 13 kilometres of the Mossy River immediately downstream of the Mossy River control structure. The estimated cost of this work is $2.3 million.

Plum Lakes

Oak and Plum Lakes wetlands complex, situated in the southwestern corner of the province, has been the subject of conflicting interests for the last few decades. The two main and opposing interests are agriculture and the water related resources, mainly wildlife. One of the main difficulties encountered in trying to solve these conflicts was the complex topoggraphy and hydrology of the numerous marshes known as Plum Lakes. A survey of this area is currently underway and a study identifying management alternatives to optimize the resources of the Oak and Plum Lakes area has been proposed.

Vestfold Marsh

A proposal submitted by Ducks Unlimited in 1983 to improve waterfowl habitat and provide some flood protection and improvements to drainage in the Vestfold area in the southern Interlake was revised. After evaluating the effects of this proposal on flooding, approval in principle was given to Ducks Unlimited for the construction of the Goulet Lakes Hatchery Drain portion of the Vestfold project. This will provide a western outlet for drainage into Lake Manitoba.

Souris River

The water supply on the Souris River is considered to be fully allocated under present conditions. Consequently, no new water rights licences for irrigation have been issued on the Souris River since 1983. A study of the present allocation of water for irrigation on the river was initiated in May, 1985. In addition to examining the current situation, the study will identify possible methods of improving the availability of the existing supply to individual users.

Fisher River

Two possible alternatives have been examined as a means of reducing peak flows on the Fisher River in the Peguis Indian Reserve. The first is a diversion-detention concept located near Dallas at an estimated cost of $7 million. The other alternative is storage in the Switzer Creek area. Although considerably less effective than the diversion-detention concept near Dallas, storage in the Switzer Creek area would cost considerably less — $330,000.

The Peguis Indian Band continued to believe, however, that construction of a diversion to Lake Winnipeg at a cost of $20 million is the only acceptable alternative.

Bellsite

Local farmers suffering excessive crop losses in the Bellsite-Novra area have requested improved drainage. A study of the existing drainage system was undertaken to identify the need for additional drainage, an appropriate drainage standard where drainage is required, and a drainage improvement plan. It is expected to be completed in the summer of 1986.

Portia Complex

The Portia wildlife management project comprises an area of about 10,000 hectares in the Alonsa Conservation District. The project is being developed in two phases by Ducks Unlimited. At the request of the Conservation Districts Authority, an analysis was initiated to identify surface and groundwater resources, water management problems, agricultural lands that may be improved as a result of the project, cost of water management works, and a general water management strategy including future development

opportunities in the Alonsa Conservation District resulting from the project. It is anticipated that the report will be completed in the summer of 1986.

Navin Drain

Landowner concerns regarding the level of drainage service along the Navin (Centreline) Drain (N 13, 14-10-3E and N 17, 18-10-4 E.P.M.) prompted an investigation of the associated drainage system located southeast of Winnipeg and west of the Red River Floodway. Surveys of the municipal laterals were completed in the spring of 1986 and studies to develop a drainage plan and determine an appropriate drainage design standard are expected to be completed in the fall of 1986.

Aux Marais Drainage System

A study was initiated to determine the economic feasibility of drainage improvements to the Aux Marais drainage system. The terms of reference included an assessment of the current capacity of the system, cataloguing the soils, evaluation of land use and land capability, preliminary design and cost estimates of the drains of the system, and determination of the benefits of the drainage improvements.

Topographic surveys were initiated in September, 1985 and should be completed in May of 1986. The study report is expected to be completed in the fall of 1986.

Garland River/Wellburns Creek Flooding Problems

Landowners along the Garland River and, to a lesser degree, Wellburns Creek (formerly called the Point River) have experienced a long history of hardship resulting from flooding and erosion caused by excessive spring snowmelt and summer rains. The overflow of the Garland River into the Wellburns Creek system in 1980 has led to considerable changes in this watershed. Nearly 80% of the Garland River flow throughout the year has been diverted eastward and flooded to varying degrees approximately 250 square kilometres in the Wellburns Creek watershed. The Water Resources Branch undertook a preliminary study to estimate the damages occurring due to this new flooding. The study indicated that the diversion is causing substantial damage along the path of the overflow. Additional investigations are planned to determine an acceptable solution to the problem.

Whitemouth River

As a result of flooding problems along the Whitemouth River, the L.G.D. of Reynolds requested an investigation into the feasibility of installing a control structure in the headwaters of the watershed. The headwater storage option in addition to several other flood control schemes is under consideration. The study is expected to be completed in the summer of 1986.

Intergovernmental Water Management

Roseau River

The objective of the International Roseau River Study, completed in 1975, was to determine the impacts that a proposed flood control project in Minnesota would have on the people and the environment in the basin in both Canada and the United States and to develop a basin-wide plan for the Roseau River and its tributaries. In Manitoba, the following protective works were identified: Roseau River channel enlargement, Roseau-Red River diversion, Gardenton Floodway rehabilitation, extension of bridges and Dominion City water treatment plant modification. Other impacts identified included increased erosion and the general environmental impact. Modifications to the 1975 fundings have been presented by the U.S. Army Corps of Engineers, but it was concluded that the current project is essentially the same in terms of its effects on Canada as the project reviewed by the International Joint Commission at that time.

The Corps was advised that Manitoba would have to undertake a full environmental impact assessment (EIA) of the project and mitigation works on Manitoba before any work is initiated in the United States. The Manitoba Environmental Assessment and Review Agency has prepared guidelines for the preparation of an EIA. The Corps has started negotiations with Manitoba to carry out the necessary environmental assessment and design of mitigation works in Manitoba.

Manitoba Escarpment Storage Study

Together with PFRA and Manitoba Agriculture, the Water Resources Branch participated in a study to identify and evaluate the potential benefits and costs of developing headwater storage along the Manitoba escarpment from the Porcupine Hills to the Pembina Hills.

Fourteen potential headwater storage sites were identified for detailed study. Additional hydrologic information with respect to these proposed sites is currently being compiled. Surveys were underway to determine the benefits of the proposed reservoirs.

The groundwater and water quality implications were also being assessed. Based on a preliminary assessment, it does not appear that the proposed headwater storage dams will have any significant effects on wildlife, fisheries, forestry or recreation. The final report is expected to be completed by the end of 1986.

Enhancement of Water Supplies along the Seine River

There have been numerous instances in the past when stream flow along the Seine River downstream of Ste. Anne has been insufficient to satisfy the requirements of water users during dry periods. The Water Resources Branch and PFRA are jointly studying methods of alleviating these unfavourable conditions.

A water demand study was completed along with a brief groundwater assessment for the affected area. There appears to be little potential for significant surface storage upstream of Ste. Anne, but flow enhancement utilizing groundwater sources could be feasible. PFRA is continuing to investigate the engineering aspects of flow enhancement.

Rural Municipalities of Shellmouth and Russell — Interprovincial Drainage Concerns

Agricultural land drainage activities in several watersheds in the R.M.'s of Langenburg and Churchbridge in Saskatchewan have resulted in increased flows downstream in the R.M.'s of Russell and Shellmouth in Manitoba. In 1980, the Prairie Provinces Water Board initiated a study to assess the impact on the two municipalities in Manitoba and to determine an equitable basis for cost sharing of remedial works. The first phase of the study, which had been completed by the Province of Saskatchewan in 1984, assessed the hydrologic impact of upstream drainage improvements on seven interprovincial streams. The Province of Manitoba began the second phase in February, 1985 consisting of an assessment of the improvements required to accommodate the increased flows in the drainage systems and an assessment of the possibility of these flows causing increased flooding in the Assiniboine River Valley downstream of Lake of the Prairies. Field surveys were begun by Manitoba in 1985 and were completed in early 1986. The study is scheduled for completion in mid 1986.

Southwest Regional Water Development Study

A comprehensive study of the water development opportunities and options for meeting increased demands in the southwestern portion of Manitoba was initiated in conjunction with PFRA. An investigation of present and future water demands as well as an assessment of the need for water retention facilities in the study area has been completed by the Water Resources Branch. This information has been forwarded to PFRA which is currently investigating the feasibility of providing water retention facilities for such purposes as dugout filling.

Patterson Dam Re-evaluation

The construction of the proposed Patterson Dam was recommended in the 1978 report of the Souris River Basin Study Board. The proposed reservoir would be situated on Gainsborough Creek approximately two miles upstream of its confluence with the Souris River and would have a storage capacity of 20,600 dam^3. The Water Resources Branch has prepared a water demand study for the affected areas and is in the process of completing an updated estimate of the project benefits. This updated estimate includes a comprehensive re-evaluation of recreation benefits prepared by the Economics and Program Review Section of the Department of Natural Resources. The Water Resources Branch is also preparing an updated environmental assessment of the project.

Canada-Manitoba Subsidiary Agreement on Value-Added Crops Production

This federal/provincial agreement, signed on April 1, 1979, provided for a variety of demonstrations and investigations to increase the production of value-added crops and to improve the production of forage crops and maximize their feed value. The costs of a number of projects in Manitoba have been shared under this agreement.

The provincial portion of the drainage works carried out under the agreement are essentially complete in the Domain Drain, Marsh River, and La Salle River areas. Construction of two major crossings in the Morris River area on the Roberts Drain and McTavish Drain system will be undertaken in the future (one in 1986 and the other when P.T.H. No. 75 is upgraded). Reconstruction of the provincial waterways in the Morris River area has been completed. In the Cooks Creek area, several contracts for the diversion to the Red River Floodway have been awarded.

As part of the Agro-Man Evaluation Overview Report, performance reports and performance summaries for the water management projects have been completed. Generally, the performance reports indicated

that the objectives established in the original water management project outlines were achieved.

Canada-Manitoba Interim Subsidiary Agreement on Water Development

Water Management

Drought Proofing Studies
Under contract, the Department of Agricultural Economics of the University of Manitoba developed a series of mathematical models which have been used to simulate Manitoba's agricultural economy with and without the imposition of drought conditions. A series of scenarios consisting of potential drought proofing measures have been tested and assessed using the mathematical models. Included in these scenarios are the adoption of farming practices which could lead to improved soil moisture conditions through the greater retention and conservation of snow cover. The results of this work are being used to formulate a long term drought proofing strategy for Agro-Manitoba.

Water Management Investigations
Investigations to determine whether it would be economically feasible to divert water from the Assiniboine River to the Assiniboine South-Hespeler area are nearing completion. Activities have included the economic evaluation of the project, an assessment of the impacts of the project on various aspects of the environment and studies into the costs of the principal engineering works.

Canada-Manitoba Subsidiary Agreement on Agri-Food Development

Pasquia Polder III Project

The Water Resources Branch completed a project proposal for developing the Pasquia Lake area near The Pas. On October 30, 1985 the project was approved for implementation by the Agreement Management Committee. The project will be developed jointly by Manitoba Natural Resources and PFRA. The project will cost approximately $5 million, and will involve the construction of two large pumping stations and about 60 kilometres of drains in addition to various associated works.

Washow Bay Watershed Drainage System Study

In recent years, farmers in the Washow Bay area have experienced severe agricultural crop damages due to flooding or unusually wet conditions from summer rainstorms. As a result, the R.M. of Bifrost and the L.G.D. of Fisher requested that the Water Resources Branch undertake studies of the drainage systems in the area. The branch, in conjunction with Manitoba Agriculture has completed a report which includes an examination of the nature of the drainage and flooding problems, the agricultural potential in the area and conceptual designs of potential solutions including cost estimates, benefits of improved drainage and recommendations as to the most practical solutions. The report indicated that the total estimated cost of providing drainage to recommended agricultural standards within the Washow Bay study area would be $6.2 million. A project prospectus for development of the Washow Bay Area Drainage System Project under the Canada-Manitoba Agri-Food Development Agrement was prepared. Discussions were held with the R.M. of Bifrost concerning cost-sharing and areas of responsibility.

North Duck River

In response to concerns expressed by the Cowan District Steering Committee, the Water Resources Branch in conjunction with Manitoba Agriculture, undertook a study of possible flood and erosion control measures along the North Duck River. The report, completed in the fall of 1985, analyzed both headwater storage options and diversion options. It was concluded that the most economic means of providing headwater storage would be to construct a single dam in the upper reaches of North Duck River at a total estimated cost of $545,000. However, it was determined that if only the direct, easily quantifiable benefits were taken into account, the economic feasibility of the project would be marginal. The report recommended the implementation of appropriate agricultural practices and erosion control measures to complement the structural measures.

In early 1986, an examination of some of the less direct benefits from the headwater storage dam was initiated. The objective was to consider inclusion of the project under the Agri-Food Development Agreement to complement the on-farm soil and water management activities which have been approved by the Agreement Management Committee.

Flood Damage Reduction Section

Canada-Manitoba Flood Damage Reduction Program

There were no further designations of flood risk areas during 1985-86 as the Mapping Agreement terminated on December 31, 1984 and was not extended until September 6, 1985. The designation of Morden was to have taken place, but was postponed to allow Morden to incorporate restrictions for development in flood prone areas by amending its development plan and by-laws.

All aerial photography for the program was completed. Base maps are being prepared for The Pas, Virden and parts of Winnipeg.

A hydrologic review and report was completed for Arborg, while hydraulic studies for Lorette and Arborg were completed. Studies for Morden, Riverton, Fisher Branch, and Neepawa were still underway.

Studies undertaken under the Flood Damage Reduction Studies Agreement neared completion for Morden, Elie and Riverton.

Manitoba Flood Protection Projects Agreement

Under the existing General Flood Damage Reduction Agreement, there were provisions for entering into other agreements to effect flood damage reduction. On March 10, 1983 Canada and Manitoba signed "An Agreement Respecting the Upgrading of Ring Dykes in Certain Communities in the Red River Valley." This Agreement provided for the upgrading of the existing dyking systems of eight communities to the one percent flood protection level. The eight communities were Emerson, Letellier, Dominion City, St. Jean Baptiste, Morris, Rosenort, Brunkild and St. Adolphe. The Agreement provided for up to $4.5 million with Canada contributing 45% of the costs and Manitoba 55%. Manitoba signed agreements with the local governments to contribute up to 5% of the capital costs and 25% of the annual maintenance costs. The local governments agreed to be responsible for all grass mowing in lieu of 25% of the annual maintenance cost and will also contribute a fixed annual payment to the province to provide the municipality's share of the costs of future replacement of flood pumps.

With the exception of Emerson, Dominion City and St. Adolphe, the majority of the required works had been completed as of March 31, 1986. This agreement was to terminate on March 31, 1985, however, on May 22, 1985 the agreement was amended to extend the time and provide for additional funding of $1.6 million to include flood protection works for Ste. Rose du Lac and the Souris Water Treatment Plant. The termination date for the Manitoba Flood Protection Projects Agreement is now set for March 31, 1989.

Provincial Flood Damage Reduction

During the spring of 1985 operation of the Red River Floodway was not required, because of reduced flows in the Red River. The Portage Diversion and the Shellmouth Dam, however, did require operation.

Through the application of Provincial Land Use Policy No. 11 which was enacted by Order-in-Council in November, 1980 under the Planning Act, the Province exercises control over development in areas subject to flooding, erosion, river bank instability, landslides and subsidence. During 1985-86, 710 subdivision applications were reviewed and input was provided for four planning documents. Seven draft planning documents and 57 zoning by-laws were reviewed.

After the 1979 Flood, the Red River Valley from Emerson to Winnipeg was designated as a flood area under **The Water Resources Administration Act**. Forty permits to build or erect a structure in this area were processed during 1985-86. (Manitoba Regulation 179/79 requires a person wishing to build or erect a structure in the Red River Valley to first obtain a permit from the Water Resources Branch.)

Under Section 494.09 of the City of Winnipeg Act, the Minister may make an order varying the floodproofing criteria established by Manitoba Regulation 9/85. Eighteen applications for variances were processed during the 1985-86 year.

The province has approved a diversion around the Town of Gimli based on a combined project consisting of land drainage and flood protection. The province will be responsible for all costs associated with the agricultural drainage portion and 90% of the flood protection costs. The Town and R.M. of Gimli are to contribute 10% of the flood protection costs and be responsible for 25% of the annual maintenance cost.

Special Services Section

The Special Services Section completed an agreement to transfer the Town of Grandview Water Storage Reservoir from the Province of Manitoba to

the Town of Grandview. Other services provided included:

- review of right-of-way plans for opening and closing of roads;
- preparation of recommendations regarding the designation or abandonment of Provincial Waterways;
- preparation of agreements and submissions to the Treasury Board regarding cost-sharing with other jurisdictions;
- provision of geotechnical advice, including field investigation for subdivisions and Crown land leases and purchases;
- provision of technical and drafting services to establish severance lines required under the Northern Flood Agreement;
- updating the inventory of all provincial water control works; and
- maintaining data on unit construction costs, agricultural commodity prices, and crop yield information of the Manitoba Crop Insurance Corporation.

The annual report on the maintenance and operation of primary dykes in the City of Winnipeg was prepared by the Dyking Commissioner.

Water Supply Projects

During the past year, under the Interim Subsidiary Agreement on Water Development, two projects were completed by the province in conjunction with PFRA.

Assiniboine-La Salle River Enhancement Project

The project was completed and operated through the 1985-86 winter. The major components of the project were three pumping stations that divert water into the La Salle River, Elm River and Mill Creek. There were some mitigation works to existing facilities, however, that remain to be completed in 1986.

Altona Water Supply Project

Work started on the Altona Water Supply Project in September, 1984. The project involved the construction of a water pipeline from a proposed water-treatment plant in Letellier to Altona, and a water-supply intake from the Red River to the treatment plant in Letellier. The 22-km pipeline from Letellier to Altona was completed in March, 1985. The pipeline from the intake works to the proposed water treatment plant in Letellier was essentially completed in October, 1985. The Manitoba Water Services Board called for tenders for the water treatment plant in August, with completion scheduled for November 1, 1986.

Hydrotechnical Services

Hydrology

Hydrologic Monitoring

Water level data was gathered at 127 hydrometric stations throughout Manitoba to assist in the operation of water control structures. A further 320 flow level and sediment stations were operated by the Federal Water Resources Branch under the terms of the Canada-Manitoba Agreement for Water Quantity Surveys. Manitoba's share of the operating costs for these stations was $553,404. All recorded data was entered into the Branch's computer for use in hydrologic studies.

Data on water levels and streamflows for 30 lakes, 29 rivers and seven reservoirs were compiled and distributed weekly to several hundred users.

Isohyetal maps of storm precipitation were prepared and distributed after each significant storm.

Hydrologic Studies

Climatological and hydrological studies and data were provided at the request of users. They included design water levels for lakes and reservoirs, design waterway opening discharges and design flood hydrographs. Studies undertaken in 1985-86 also included the hydrology of the Vestfold Marsh complex and Thompson Creek.

Flow Forecasting

During 1985, daily flood information sheets containing water levels and flow forecasts were prepared for various watersheds in Manitoba during peak runoff periods. Due to heavy rainfall in the Red River Watershed, additional flood sheets were prepared for the Red River throughout most of the summer and fall.

Special streamflow and water level forecasts were also prepared following the major rainstorms in the Riding and Duck Mountains and Porcupine Hills August 9-13 and in the Elm Creek area August 16-18.

Throughout the year, inflow forecasts were prepared for various lakes and reservoirs where control structures are operated by the province.

During February and March, 1986, spring flood outlooks were prepared for the Red River, the Assiniboine River, the Souris River and for 51 smaller watersheds and eight lakes and reservoirs in Manitoba.

Canada-Manitoba Flood Forecasting Agreement

Application of the HSPF streamflow simulation model continued under Phase 2 of the Agreement which expired on March 31, 1986. The model was calibrated

and verified on two sub-basins of the Assiniboine River (Willow Creek and Gopher Creek). Action was taken to improve flood forecasting through participation in an Atmospheric Environment Service feasibility study into the use of Telidon weather radar to help estimate the amount and spacial distribution of rainfall.

An extension to this Agreement was requested through the Steering Committee of the Canada-Manitoba Flood Damage Reduction Program. Manitoba approved a 3 1/2 year, $400,000 extension subject to concurrent approval by the federal government.

Hydrogeology

Realignment within the section at the beginning of the year resulted in the transfer to the Department of Agriculture of all groundwater exploration and development activities along with two staff positions. The functional units in the section were subsequently redefined to include Aquifer Data, Aquifer Definition, Aquifer Capacity and Aquifer Modification.

Aquifer Data

Twenty-six hundred water well driller's reports were received from licenced water well contractors operating in the province. Four hundred and fifty groundwater monitoring stations were in operation from which data on water levels and water quality were obtained. All groundwater data was incorporated into a permanent storage and retrieval system for the province.

Eighty-seven groundwater availability appraisals and thirty-four groundwater pollution appraisals were prepared in response to specific requests. Numerous telephone inquiries about groundwater conditions in various areas were responded to with specific resource information and advice. Groundwater development plans were prepared for three planning districts. A report outlining the groundwater conditions associated with the Manitoba Escarpment was prepared for the Manitoba Escarpment Storage Study. A number of hydrogeological cross-sections were prepared for the Canada-Manitoba Soil Survey to assist in soil salinity studies in Agro-Manitoba.

Aquifer Definition

Groundwater availability mapping activities carried out under the Canada-Manitoba Interim Subsidiary Agreement on Water Development included test drilling and water sampling within the Kenora Map Sheet Area and preparation of geologic and hydrogeologic maps for the Kenora and the Selkirk map sheet areas. Other regional aquifer definition activities included sampling of brines from deeper hydrostratigraphic units in southwestern Manitoba to establish a better understanding of freshwater- saltwater relationships, and conducting geophysical surveys on approximately 40 boreholes to gain a better understanding of the fracture patterns in the carbonate rock aquifer.

Aquifer Capacity

Under the Canada-Manitoba Interim Subsidiary Agreement on Water Development, extensive field investigations involving stratigraphic test drilling, pumping tests, spring discharge measurements and water chemistry sampling were carried out in the Assiniboine Delta, Oak Lake and Glenora Aquifers. Data collected from these investigations were compiled and organized for use in constructing mathematical flow models to define the capacity of these aquifer units.

Other aquifer capacity activities involved a preliminary assessment of the thermal capacity at aquifer development sites in the carbonate rock aquifer in the Winnipeg Area and preparation of a final report on the capacity of the carbonate rock aquifer in the Selkirk Area.

The Aquifer Capacity Geologist assessed the groundwater impact associated with various mineral exploration permits and identified groundwater concerns to be considered in issuing the permits. An assessment was also made of the presence of gasoline in private domestic wells in the Birds Hill area in which possible remedial actions were identified.

Aquifer Modification

Under the Canada-Manitoba Interim Subsidiary Agreement, data from the Elie Aquifer Recharge Project were compiled and organized for preparation in a final report.

Modifications to the water supply system for the Oak Hammock Marsh involved the development of a pressure relief system in the bedrock aquifer to prevent flooding during construction of the diversion structure and modification of five existing water supply wells to make them compatible with the relocation of the water supply canal.

The relief well system developed to prevent groundwater discharge into the newly constructed South Lateral Drain developed operational problems during the winter that resulted in severe icing problems in the outlet channel. Modifications to the outlet channel will be evaluated to determine a method of reducing the icing problem. Two additional pressure relief wells

were also developed along the new drain to stabilize a local soil instability problem.

A feasibility investigation to determine whether an aquifer modification plan can be developed to eliminate a seepage problem that has existed along No. 12 Highway near Ladywood for many years was initiated at the request of Manitoba Highways. Field inspections to assess icing problems associated with the maintenance of the Gillespie Drain and the Camper Drain were also carried out.

Regional Water Management

Regional water management responsibility and authority are vested in five regional water managers. The responsibilities in general are to act as Water Resources Branch representatives in the regions, assist in the development and delivery of regional programs, and to contribute to the development of branch policies and standards.

There are seven regions in the province, each being served by a Regional Water Manager. However, the Eastern and Northeastern regions have been combined under one Regional Water Manager as have the Western and Northwestern regions. The other regions are the Interlake, Southeastern, and Southwestern.

Summary of Water Control Works, 1985-86

Program	Region					Total
	Interlake	Eastern/ Northeastern	South Eastern	South Western	Western/ Northwestern	
Maintenance of						
— Water Supply and Conservation Facilities	$ 14,480.20	$ 9,339.11	$ 23,170.03	$13,250.23	$ 103,444.13	$ 163,683.70
— Flood Damage Reduction Works	188,983.11	104,877.18	88,251.08	—	66,101.44	448,212.81
— Land Drainage Works	986,142.81	207,935.31	1,187,086.15	47,888.45	651,849.73	3,080,902.45
Removal of Excess Rainfall From Agricultural Land	495,709.30	45,309.11	176,242.22	—	42,498.55	759,759.18
Bridge Replacement Program	82,273.05	35,685.74	212,239.97	—	176,323.03	506,521.79
Value Added Crops Production Agreement	—	2,931,363.22	1,009,360.26	—	—	3,940,723.48
Water Development Agreement	—	—	391,591.39	—	—	391,591.39
Pasquia Polder III Agricultural Land Reclamation Project	—	—	—	—	91,770.16	91,770.16
Oak/Plum Lakes Regulation	—	—	—	25,000.00	—	25,000.00
Southcentral/Interlake Capital Projects	84,236.94	—	—	—	—	84,236.94
Upgrading Town Dykes	—	—	1,021.363.57	—	2,645.00	1,024,008.57
Vermilion River Dam	—	—	—	—	11,145.86	11,145.86
Miscellaneous Projects	—	—	—	—	8,696.48	8,696.48
Total	$1,851,825.41	$3,334,509.67	$4,109,304.67	$86,138.68	$1,154,474.38	$10,536,252.81

Wildlife

This branch develops and implements management programs to ensure the wildlife resource is passed on in at least as vigorous a state as it was received by the present generation; delivers programs that provide for the subsistence, and commercial and recreational use of the wildlife resource; implements programs to alleviate wildlife damage to people and property; and promotes the use of wildlife for scientific and educational purposes.

Wildlife Management Programs

Wildlife Education

Manitoba's National Wildlife Week Program continued as new initiatives were launched in an effort to increase public awareness of wildlife. The National Wildlife Week Working Group appointed a Wildlife Ambassador, John Bonk of the Winnipeg Blue Bombers to promote the week through radio and TV announcements. Based on the 1985 theme "Do It For Wildlife", Manitoba's group sponsored a doodle poster and prose contest, and a wildlife film festival. A colouring book and teacher's activity manual was also provided. It promoted the cleaning of riverbanks, landscaping for wildlife, building homes for birds, detecting diseased elm trees, and raising funds for wildlife research and habitat conservation. Wildlife displays, including those of some twenty wildlife groups, were set up in Brandon and Winnipeg, reaching an estimated 150,000 people throughout the week.

Public safety was promoted through a "Be Bear-Aware" booklet for campers and cottagers. Programs were also targeted to youth in co-operation with Ducks Unlimited, the Canadian Wildlife Service and Department of Agriculture. A Wildlife Conservation manual for the 4-H program was produced.

The branch continued to deliver nature interpretation programs at Oak Hammock Marsh and Narcisse Wildlife Management Areas. Over 55,000 people visited Oak Hammock Marsh and another 12,000 were contacted in Winnipeg shopping mall displays during July and August. At the newly-opened Oak Hammock Information Centre, naturalists spoke to 4,700 people on weekends in September and October. Additional visitors were contacted during the week as well.

At Narcisse Wildlife Management Area 3,500 people visited the world renowned red-sided garter snake dens where seasonal naturalists interpreted the uniqueness and significance of the area.

Fur management staff conducted trapper education workshops at a remote camp for boys in Nopiming Provincial Park. This native youth rehabilitation camp is operated by MacDonald Youth Services and sponsored by the Southeast Tribal Council. Sessions on the history of the fur trade, biology of furbearers, pelt preparation, humane trapping methods and furbearer identification were coupled with actual trapline experiences.

Recreational Hunting

Hunting remained a popular activity in 1985-86. Big game hunters spent 219,058 recreation days and bagged 1,401 moose, 19,508 deer, 319 elk, 977 black bears, 42 woodland caribou and 27 timber wolves. In 1985, 27,567 resident and 4,186 non-resident migratory game bird hunters took to Manitoba's fields and marshes. This was a slight decline in number from the previous year.

Goose hunting continued to be excellent throughout much of southern Manitoba. In the Oak Hammock Marsh Managed Hunting Area for example 3,000 hunters shot 14,000 geese, an all-time high.

Upland game bird populations remained low but there were indications that ruffed and sharp-tailed grouse were on the upward swing of their cycle. Snowshoe hare populations also appeared to be recovering.

For the first time prizes were offered to Manitoba big game hunters who turned in elk or moose jaws for aging. The incentive of winning a rifle, a compound bow or an antler chair, all of which were donated prizes, resulted in a marked increase in numbers of jaws turned into the branch.

Moose Management Agreements

The Department successfully negotiated two moose management agreements with local Indian bands and user groups in the Waterhen and The Pas area as part of the department's overall strategy to restore depleted moose populations. Under terms of the one to two year agreements, native people have agreed to voluntarily cease hunting in GHA's 8 and 20, anticipating that this action will result in an increase in the moose population.

A major moose management program was initiated in the Northern Flood Agreement area through funding provided by the Department of Northern Affairs. The program was directed primarily to residents of Norway House, Cross Lake, York Landing, Split Lake, Nelson House and South Indian Lake, and secondarily at recreational hunters who use the area. The program included regular presentations to the Wildlife Advisory and Planning Board, community workshops, the production and airing of a video film featuring the results of moose census work in the Resource Areas, and the monitoring of habitat, moose

populations, wolf population and predation, environmental factors and hunting pressure.

Caribou Management

Under the Canada-Manitoba Northern Development Agreement, the branch continued to meet its commitments to the inter-jurisdictional Caribou Management Board. This board is composed of representatives of user groups and government agencies from Manitoba, Saskatchewan and the Northwest Territories concerned with the Beverly and Kaminuriak Barren-ground caribou herds. The board continued the public consultation process in the communities of Tadoule Lake, Lac Brochet and Brochet. The winter of 1985-86 saw the largest movement of Barren-ground caribou into northern Manitoba in twenty years, and hunters were able to take an estimated 4,000 animals.

Elsewhere in Manitoba a Woodland Caribou Study was undertaken on the east side of Lake Winnipeg to determine the effects of logging on sensitive caribou habitat.

Polar Bear Control Program

Under a revised Polar Bear Control Program, bears that habitually created problems were captured at the Churchill refuse site and shipped to zoos. Efforts were also made to involve Churchill residents in the design of the control program. Staff captured 76 bears in the fall of 1985. This represented the second highest number of bears handled since the program began 18 years ago. Of the 76 bears held in the Churchill holding facility, 65 were released and 9 were shipped to zoos. Two bears died.

Winnipeg Deer Herd Relocation Program

An ambitious relocation program was initiated during the winter of 1986 to capture Winnipeg deer and move them to the St. Malo area 30 kilometres southeast of the city. Winnipeg's expanding herd of 500 white-tailed deer needed to be reduced in order to bring it in line with the habitat base, reduce growing problems with deer-vehicle collisions, and damage to gardens, shrubs and crops. From February 3 to March 14, 114 deer (88 does/fawns and 26 bucks) were captured in three city traps and successfully relocated. The St. Malo and District Wildlife Association provided a great deal of assistance in this project, including the provision of transportation.

Beaver Mascots

Two six month old beavers, named "Kanda" and "Kandine", were live trapped in Nopiming Provincial Park for use as Team Canada Mascots for the 1986 Commonwealth Games. After a brief stay at Winnipeg's Fort Whyte Nature Centre they were presented to Commonwealth Games president James Richardson who arranged their flight to Edinburgh.

Urban Waterfowl Management

An initiative to attract waterfowl to the Red River Floodway was undertaken in 1985-86. The plan was completed with the co-operation of the Water Resources Branch, Fisheries Branch, the Department of Agriculture and Ducks Unlimited.

Commercial Management Programs

Amphibian and Reptile Harvesting

During a two week snake picking season, 90,080 red-sided garter snakes were captured live and sold to biological supply houses in the United States. A two-month leopard frog season reinstituted in 1985 resulted in the sale of 11,258 kilograms of leopard frogs.

Wild Fur Management

Manitoba trappers harvested $4.8 million worth of wild fur in 1985-86 for an increase of $300,000 over 1984. Improved fur prices saw trapping licence sales reach 16,000.

Trapper education staff conducted 17 fur schools, and working with the Manitoba Registered Trappers Association, delivered a fur conservation message to 13,000 students in their classrooms. Trapline officers continued to be upgraded in fur conservation, humane trapping and instructional techniques.

Activity in the humane trapping area increased with the opening of the Fur Institute of Canada humane trapping research center at Vegreville, Alberta. Once approved, trapping devices undergoing tests at the facility will be forwarded for field testing at both Tramping and Wallace Lakes in Manitoba. Trapper education courses were held at both locations.

The Fur Program continued to provide financial and manpower resources to the Fur Institute of Canada and assisted the Manitoba Registered Trappers Association with $60,000 in grants.

Wildlife Damage Control

The department helped prevent black bear damage to beehives by removing problem bears from the vicinity of bee yards. As a result of these efforts bear damage compensation payments dropped to $14,300 from the $96,000 paid out in 1984-85. In addition, 40 grants of $100 each were made to beekeepers who installed bear proof electric fences around bee yards. Scaring devices and repellents were used to protect crops from elk and deer damage. Winter intercept feeding was again used as an alternate food source to reduce deer and elk damage to crops or stored feed. Compensation payments for deer, elk and black bear damage to farm crops amounted to $131,000.

Due to an extremely wet fall, crop damage by waterfowl (mainly geese) was severe. Program costs of $450,000 were shared equally between Manitoba and Canada.

The Federal-Provincial Riding Mountain National Park Beaver Damage Control Agreement was renewed for an additional 5 year term.

Wood Bison Re-Establishment Program

In 1985 the 71 wood bison held in captivity near Waterhen produced very few calves, a factor attributed to stress during the previous breeding season. A crop of 17 calves was expected in spring 1986. Initiated in August 1983, the project has cost $1.0 million to date, 90% of which has been funded by the Government of Canada through the Northern Development Agreement.

The project, now funded by the Wood Bison Re-Establishment Foundation Incorporated (a non-profit organization), continues to be a multiple agency conservation venture involving the federal and provincial governments, the Canadian Wildlife Federation and the Waterhen Indian Band.

Elk Ranching

Raising elk in ranches for domestic and foreign markets received unprecedented attention in 1985-86. The commercial use of wildlife and the associated profits are central issues in the controversy. To date, about 100 applications were received for elk ranch permits, most of which originated in the Western Region. A policy regarding elk ranching was under review by the Minister of Natural Resources at the end of the fiscal year.

Habitat Management Program

Wildlife Management Area Program

Manitoba Regulation 218/85 added 356 hectares (880 acres) of Crown land to the provincial wildlife management area (WMA) base. These new WMA lands, located in southwest Manitoba, were established to protect valuable habitat where relatively little Crown land exists and rapid agricultural expansion threatens indigenous wildlife species.

Development activities designed to increase public awareness of WMA lands included clearing of approximately 22 miles of boundary lines, erecting of 80 feature signs and 1,000 boundary signs, and improving access at Souris River Bend WMA, Mantagao Lake WMA, Narcisse WMA, and Pembina River Valley WMA.

Wildlife habitat management projects focused on improving water supply and control, developing food plots, and maintaining shelterbelts. Construction totaling $300,000 under agreement with Ducks Unlimited Canada resulted in 8 1/2 miles of drainage channel, 19 miles of dykes and 6 control structures at Oak Hammock Marsh WMA and Saskeram WMA. Food plots totalling 50 acres were developed to provide forage for big game animals at Alonsa WMA and Saskeram WMA. Shelterbelts in seven WMA's were kept weed free by spraying, rotovating and mowing.

Grants-in-lieu of taxes totaling $187,334.99 were paid to 49 municipalities and local government districts for lands in 45 WMA's in southern Manitoba.

Agricultural Administration on WMA Lands

In the past the administration of agricultural use agreements on approximately 450 parcels of wildlife management area lands was handled by the Department of Agriculture. These responsibilities were in the process of being transferred to the Department of Natural Resources at the end of the fiscal year.

Functions undertaken in 1985 to facilitate this transfer included the development of policies and procedures, the transfer of background information to a computer system and the assessment of agricultural values on wildlife management area lands.

Manitoba Habitat Heritage Program

In 1983, the Manitoba Government approved in principle the concept of a special program to protect key fish and wildlife habitats which would be administered

under a foundation or corporation. That concept became a reality when **The Manitoba Habitat Heritage Act** was passed by the Legislature. It provides for the establishment of The Manitoba Habitat Heritage Corporation administered by a board of directors appointed by the Minister.

Habitat Heritage projects in 1985-86 included the protection of 480 acres of privately owned prairie-parkland habitat under a 5 year Habitat Protection Agreement (lease). In addition, 320 acres of valuable white-tailed deer habitat in the Pembina River Valley were purchased.

In a cost shared agreement involving the Manitoba Wildlife Federation, the Manitoba Naturalists Society, Ducks Unlimited, Wildlife Habitat Canada Corporation and the province (using Habitat Heritage funding) a 160 acre parcel of wetland and upland habitat was purchased in the Killarney area.

Along with acquisition of key habitat, several habitat enhancement projects were undertaken. These included a shelterbelt establishment program and the installation of a windmill pump on the John MacPhail Wildlife Refuge to augment water supply. Elsewhere, food plots were created in the Alonsa Wildlife Management Area, in the Duck Mountain and Sandilands Provincial Forests, and on Hecla Island. The "Greenwings", a youth section of the Turtle Mountain Ducks Unlimited committee, were provided with funding for a wood duck re-establishment project in Turtle Mountain Provincial Park.

Road Allowance Habitat Protection Program

The Manitoba Department of Natural Resources, Wildlife Branch, and Ducks Unlimited co-produced a brochure entitled "Ribbons of Habitat — Conservation of Rights-of-Way". This brochure is aimed at promoting the preservation of wildlife habitat on unused municipal road allowances. A 35 mm slide illustrated presentation on this subject was presented to 300 municipal officials in Brandon in March, 1986, to bring to their attention this habitat conservation opportunity. Since then, eight municipalities have enacted bylaws to protect native cover on municipal rights-of-way.

Wetland Management Program

A major wetland development that includes the Rat River Wildlife Management Area in southeastern Manitoba is being considered by the province and Ducks Unlimited. Contour surveys and a hydrological study of Rat River and Joubert Creek were initiated to examine the feasibility of the construction of a 3,200 ha (8,000 acre) wetland complex. In addition to waterfowl and furbearer benefits the project will be designed to provide flood protection from Rat River overflows.

Two committees were formed to determine development possibilities for the School Bay and Lake Francis Management Units of the Delta Marsh. Each committee held a series of meetings to finalize development plans. Concerns in the School Bay Management Unit are primarily with drainage of the East Outside Drain through the marsh. The Lake Francis Ad Hoc Committee has requested higher water levels and is willing to consider a number of separate pump-up impoundments.

At Oak and Plum Lakes a detailed contour survey was carried out by Ducks Unlimited and the department. It will aid in the preparation of development options for the basin.

A total of 10 Ducks Unlimited projects, comprising 2,880 hectares of Crown land, were reviewed and approved by the Wildlife Branch. The largest of these projects (Portia) located near Ebb and Flow Lake on the west side of Lake Manitoba, involves 5,300 acres of wetland and 990 acres of upland habitat. The Saskeram and Summerberry Advisory Committees continued their co-operative management roles in the Saskatchewan River Delta.

Water management facilities for Oak Hammock Marsh Wildlife Management Area were completed this year. They included a major diversion from Wavey Creek to provide spring fill capacity as well as improved drainage through Dewar Drain and Parks Creek. It will now be possible to provide timely water manipulation that will result in excellent marsh habitat conditions for breeding and staging waterfowl.

The Manitoba Heritage Marsh Agreement was signed on April 18, 1985, involving Manitoba, Ducks Unlimited, the Manitoba Naturalists Society and the Manitoba Wildlife Federation. The agreement named five marshes as Heritage Marshes: Oak Hammock Marsh W.M.A., Saskeram W.M.A., Grants Lake W.M.A., the Summerberry Marshes and Proven Lake W.M.A. An additional 10 marshes were listed as candidate Heritage Marshes for review by the newly appointed Heritage Marsh Advisory Committee.

Wildlife Habitat Canada Projects in Manitoba

Habitat Enhancement Land-use Program (H.E.L.P.)
HELP is a multiple land use approach to resource management in the prairie pothole district. It was under detailed development in 1985-86. The 8 year pilot program would provide for significant, ongoing local input at all levels — from planning through implementation and evaluation. A wide range of options could be offered to landowners.

The target area is the Rural Municipality of Shoal Lake, located in the heart of Manitoba's prairie pothole district. Approaches in this municipality may include leasing pothole/prairie complexes, planting erosion and salinity-prone soils with permanent vegetative cover, and promoting conservation farming techniques such as zero tillage of winter wheat and rotational grazing. Funding is proposed to be shared by Manitoba (25%), Ducks Unlimited (25%) and Wildlife Habitat Canada (50%).

Kissick Project
An agreement to purchase 64 hectares of wetland, mixed grass prairie, and aspen habitat near Cartwright was signed on February 21, 1986. Manitoba, Wildlife Habitat Canada, Manitoba Naturalist Society, and the Manitoba Wildlife Federation contributed to the acquisition of this parcel of wildlife habitat. Ducks Unlimited will finance habitat development and on-going maintenance. The Kissick project will be maintained as valuable wildlife habitat in perpetuity. The land is titled in the name of the Crown and will be established as a W.M.A.

Akudlik Marsh
Manitoba, Ducks Unlimited and Wildlife Habitat Canada continued negotiating an agreement to protect and manage Akudlik Marsh, located 4 km east of Churchill. This coastal sedge marsh, roughly 3 square kilometres in size, is an important nesting area for at least forty species of birds, including the Ross' Gull and Little Gull. Water level fluctuations and human disturbance threaten the nesting success of these species. Co-operative funding will enable construction of water control structures interpretive facilities, an observation tower, and the hiring of a seasonal interpreter.

Wildlife Habitat Inventory Activities

The inventory of white-tailed deer habitat continued in 1985-86, monitoring habitat change over 100,000 km^2 of southwestern Manitoba. During 1985-86 GHA 27 and 31A were inventoried using 1981 Landsat satellite data. Cloud cover inhibited collection of 1985 data, but two cloud free areas were identified within GHA 27. The data compared one area indicated a 24.6% loss in habitat over the four year period (6.1% per year), while the other area indicated a 15.7% loss (3.9% per year).

A pilot wetlands inventory project, co-operatively carried out with the Canadian Wildlife Service, was completed in 1985-86. The objective was to assess the potential application of computer-analyzed Landsat MSS digital data to map small wetlands and associated avian upland habitat.

Two moose habitat maps of the lower Nelson River region were produced. These maps will assist in monitoring the impact of increased sport hunting pressure from Limestone hydro project employees. Portions of the two areas were surveyed this past winter to determine local moose population numbers. The population information will be extrapolated to a regional population estimate by incorporating the habitat quantity information derived from the Landsat mapping project.

1985-86 Deer Habitat Program

The major thrust of the 1985-86 Deer Habitat Program was the acquisition of 640 acres of upland habitat in the Rural Municipality of Grey. This acquisition, located about 10 miles south of Portage la Prairie, will expand the existing Portage Sandhills Wildlife Management Area to 4,000 acres. White-tailed deer and sharp-tailed grouse are the primary wildlife inhabitants of the area. Initial management activities will focus on protecting the area's erosion-prone soils and desert-like vegetation from adverse agricultural practices and the destructive effects of all-terrain vehicles.

Land Use Allocation

The Wildlife Branch prepared, reviewed, and provided recommendations to eight planning districts relative to wildlife concerns and private land use zoning.

Inputs were also provided to Crown land use planning through the Crown Land Classification Committee and regional representation on the Bloc Planning Committees.

Over 260 Crown land use requests were reviewed and answered as required. The final Environmental Impact Statements for the Limestone Hydro Electric Project were reviewed. A wildlife monitoring program was developed and implemented in conjunction with the project. Habitat mitigation projects were developed in conjunction with Manitoba Hydro along new corridors.

Biological Services

Canada Goose Studies

Studies of the eastern prairie population of Canada Geese continued near Cape Churchill in 1985. Manitoba co-operated with several state agencies within the Mississippi Flyway, as well as with the U.S. Fish and Wildlife Service to obtain information on nesting effort and production. Aerial surveys were conducted in June to determine breeding population levels and densities within various habitat types. Initial investigations were begun on food habits of arctic foxes during the goose nesting period. A total of 1,700 geese were live trapped and banded near Cape Churchill and 500 plastic neck collars were placed on adult birds.

Banding of giant Canada geese of the Interlake — Rochester population was conducted near Hecla Island and at Reykjavik in early July. Equipment and assistance was provided by the RCMP Migratory Birds Section. Approximately 150 geese were banded and collared.

Observations of neck collared geese were initiated in southern Manitoba during September and over 1,600 readings were made through November. This information was forwarded to the U.S. Fish and Wildlife Service for compilation with other sightings within the Mississippi Flyway.

Waterfowl Banding

The Wildlife Branch and the Canadian Wildlife Service co-operated in operating five duck banding stations in 1985. Some 9,000 ducks were banded as part of a long-term evaluation of waterfowl hunting mortality.

Hunter bag checks and interviews were carried out at traditional waterfowl staging areas and information on harvest, hunter numbers and attitudes were gathered.

Big Game Population Ecology

There were four areas of activity in the field of big game population ecology in 1985-86. They included a field study of movements and predation rates of wolves in the Saskatchewan River Delta, computer simulation of wolf-ungulate predator-prey systems, an evaluation of programs which deal with the relationship between ungulates and winter weather, and aerial surveys of ungulates for abundance and age/sex composition.

The study of wolves, in its second winter, occurred in an area of a declining moose population, in which there are few alternate prey species. The study showed that far fewer wolves are foraging in the area, predation rates are low, and wolves are selecting calves even more than is usually the case.

Computer simulation work concentrated on creating a model which would use data from the wolf study and data from aerial surveys of ungulates to predict the status of the wolf-moose system in the Saskatchewan River Delta during the next few years. The ultimate objective is to estimate the composition of a system which would remain relatively stable in the long term.

Aerial surveys were conducted to estimate the size of moose populations in the Saskatchewan River Delta, Whiteshell Provincial Park, and the southern portion of the area east of Lake Winnipeg. Whiteshell Provincial Park has a small moose population that appears stable. The other two areas have experienced declines, but simulations forecast recovery.

Raptor Projects

Manitoba supplied 11 immature bald eagles to the U.S. Fish and Wildlife Service in 1985 as the province's commitment continued for the fourth successive year. Nesting survey costs of up to $10,000 and all labor, expenses, flying costs etc. were borne by the U.S. The wild eaglets were released in New Jersey as part of a restocking program for the northeastern United States. In 1985, over 130 active Bald Eagle nests were recorded during nesting surveys in the Whiteshell, Interlake and northwestern areas of the province.

A three year survey by the World Wildlife Fund (Canada) indicated a 50% reduction in burrowing owl populations in southwest Manitoba. A 1985 Baird's Sparrow study in the same region reported a continuing decline in owls. It is not known what factors are responsible.

Six Great Gray Owls were radio-marked in winter 1986 and were closely monitored. Some $30,000 in private funds was raised for Great Gray Owl research.

With Parks Canada funding, four young peregrine falcons were successfully hacked from the Parks Canada Building in downtown Winnipeg. Twenty-two falcons have been released to date. Plans are to

release at least four more falcons in the summer of 1986.

The first nesting of the ferruginous hawk in 50 years was recorded in Manitoba in 1984. In 1985 three nests were found. The hawk may respond to artificial nest structures, so raptor enthusiasts are planning to build several in 1986.

Three nest cavities for prairie falcons were dug in a site along the Souris River in 1985. A few prairie falcons are seen in that area annually and it is hoped they will use the cavities.

A survey in 1984 revealed 12 Swainson's hawk nests near or within the City of Winnipeg. This was surprising as 20 years ago one would have to go a long way west to record this species. The increase of the Swainson's hawk may be due to decreases in local red-tailed hawk breeding populations. Removal of trees used by red-tailed hawks and increased human activity is believed to be a factor.

Special Projects

A long-term military training agreement signed with West Germany prompted the formation of the Shilo Environmental Advisory Committee. This group, comprised of government and University of Manitoba technical experts, is responsible for monitoring all phases of military environmental impacts on the CFB Shilo tank and artillery ranges. Studies initiated in early 1986 included vehicle-caused soil compaction, fire ecology and the affect of military manouvers on vegetation.

Wildlife Branch staff produced reports for the Committee on the Status of Endangered Wildlife in Canada on the Hognose Snake, Northern Prairie Skink, Baird's Sparrow and White Pelican in 1985.

In order to monitor the volume of international trade in wildlife products, the Convention on International Trade of Endangered Species (CITES) Management Authority initiated a "visitation" program to Winnipeg's major fur dealers and taxidermy shops. Wildlife Branch staff remained active in national and international wildlife meetings. A total of 87 CITES permits were issued from Manitoba in 1985.

Red-sided garter snakes in the Narcisse area were studied by students from the University of Texas and University of Manitoba.

Negotiations were under way with the University of Wisconsin's Co-operative Wildlife Research Unit to initiate a long-term study of fluctuations in hare and grouse populations of the Narcisse Area. Wisconsin researchers consider Narcisse W.M.A. cover and wildlife populations in ideal condition to continue cyclic wildlife population ecology formerly carried out at Rochester, Alberta.

Number of Open Area and Registered Trappers and the Estimated Value of Manitoba Wild Fur Production for the 12 Month Period Ending August 31, 1986[1]

Year	Licences Sold	Registered Trapline Permits Sold	Production Value
1976-77	8,602	2,879	$5,528,268
1977-78	8,379	2,975	5,047,377
1978-79	10,040	3,238	7,882,404
1979-80	12,809	3,627	9,615,604
1980-81	13,327	3,425	8,240,619
1981-82	13,072	3,187	5,564,491
1982-83	13,938	3,110	4,313,572
1983-84	12,110	2,927	3,783,562
1984-85	12,917	2,974	4,764,525
1985-86	11,926	2,917	5,061,209

[1] *In 1981-82, the department's fur year was changed to the 12 month period ending August 31st. The information for all previous years is based on the 12-month period ending September 30th.*

Quantity Produced, Average Pelt Price, Value of Production and Provincial Royalty Paid, by Species, for the Year Ending August 31, 1986

Species	Quantity	Average Price	Value	% of Total Value (Approx.)	Royalty Per Pelt	Royalty
Badger	352	39.50	$ 13,904	0.3	$ .01	$ 4
Bear	501	60.00	30,060	0.6	.05	25
Beaver	39,083	33.00	1,289,739	25.5	.75	29,312
Coyote	9,000	72.00	648,000	12.8	.50	4,500
Ermine	9,366	3.80	35,591	0.7	.05	468
Fisher	3,751	202.00	757,702	15.0	1.00	3,751
Fox, Blue	13	15.00	195	0.0	.25	3
Fox, Cross	370	60.00	22,200	0.4	.25	93
Fox, Red	7,476	28.00	209,328	4.1	.25	1,869
Fox, Silver	69	21.00	1,449	0.0	.25	17
Fox, White	1,113	21.00	23,373	0.5	.75	835
Lynx/Bobcat	29	685.00	19,865	0.4	.50	15
Marten	7,191	62.00	445,842	8.8	.50	3,596
Mink	20,222	47.00	950,434	18.8	1.00	20,222
Muskrat	111,810	3.15	352,201	7.0	.05	5,591
Otter	2,945	42.00	123,690	2.4	1.25	3,681
Raccoon	3,378	26.00	87,828	1.7	.05	169
Squirrel	12,995	.75	9,746	0.2	.02	260
Wolf, Timber	293	70.00	20,510	0.4	.25	73
Wolverine	94	208.00	19,552	0.4	.75	71
Total			$5,061,209			$74,555

Wildlife-Based Revenues 1985-86

Type of Licence	Revenue
Hunting Licences	
Wildlife Certificates	$409,699.00
Game Bird Licences	587,717.00
Black Bear Licences	89,891.50
Replacement Licences	957.00
Caribou Licences	5,638.00
Deer Licences	665,989.50
Elk Licences	83,940.00
Moose Licences	220,542.00
Wild Turkey Licences	770.00
Subtotal	$2,065,144.00
Commercial Licences	
Trapper Licences	$27,036.50
Fur Dealer Licences	4,100.00
Tanner Licences	75.00
Taxidermist Licences	1,575.00
Shooting Preserve Licences	400.00
Dog Trainer Licences	1,032.00
Game Bird Farm Licences	1,750.00
Amphibian/Reptile Licences	1,455.00
Guide Licences	4,770.00
Subtotal	$ 42,193.50
Fur Royalties	$ 74,555.00
Miscellaneous Revenue	$ 26,778.04
Total	$2,208,670.54

NOTE: *Revenues are based on receipts applicable to licence and fur years rather than to the fiscal year.*

Hunting Licence Sales and Revenue, 1976-77 to 1985-86

Year	Game Bird		Big Game		Wildlife Certificates		Total Licences & Certificates	
	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue
1976-77	56,581	367,888.50	13,231	237,423.25	61,494	124,387.25	131,306	729,690.00
1977-78	56,567[1]	379,400.75	52,381	554,025.50	77,862	157,485.00	186,810	1,090,911.25
1978-79	60,061[1]	402,525.75	55,822	596,778.75	82,267	165,835.25	198,150	1,165,139.75
1979-80	59,783[1]	440,639.25	48,250	539,079.50	77,855	157,039.00	185,888	1,136,757.75
1980-81	58,091[1]	460,939.75	60,505	666,291.25	83,022	167,673.00	201,618	1,294,904.00
1981-82	56,203[1]	474,355.50	66,570	713,353.25	83,998	169,719.00	206,771	1,357,427.75
1982-83	51,618[1]	621,183.00	66,711	1,081,211.50	81,225	207,131.50	199,554	1,909,526.00
1983-83	44,731[1]	697,294.50	64,062	1,134,739.50	75,119	266,116.50	183,912	2,098,150.50
1984-85	38,826[1]	565,929.00	59,406	1,158,430.00	68,233	309,957.00	166,465	2,034,316.00
1985-86	35,342[1]	588,487.00	52,541	1,066,958.00	62,607	409,699.00	150,490	2,065,144.00

[1] *Includes wild turkey licences.*

Hunting Licences Sold, 1985-86

Type of Licence	Fee	Number Sold	Revenue
Game Bird			
Resident of Manitoba	$ 7.00	30,207	$197,040.00
Non-Resident (Canadian)	45.00	926	41,272.00
Non-Resident (Non-Canadian)	85.00	4,132	349,405.00
Wild Turkey			
Resident of Manitoba	10.00	77	770.00
Moose			
Resident of Manitoba	30.00	6,956	206,442.00
Non-Resident (Canadian)	250.00	6	1,500.00
Non-Resident (Non-Canadian)	300.00	42	12,600.00
Elk			
Resident of Manitoba	30.00	2,798	83,940.00
Woodland Caribou			
Resident of Manitoba	30.00	188	5,638.00
Black Bear			
Resident of Manitoba	12.00	2,970	34,535.00
Non-Resident (Canadian)	50.00	17	850.00
Non-Resident (Non-Canadian)	100.00	546	54,506.50
Deer			
Resident of Manitoba	17.00	38,375	634,069.50
Non-Resident (Canadian)	80.00	279	22,320.00
Non-Resident (Non-Canadian)	100.00	96	9,600.00
Total Licence Sales			
Resident of Manitoba		81,571	1,162,434.50
Non-Resident (Canadian)		1,228	65,942.00
Non-Resident (Non-Canadian)		4,816	426,111.50
Total		87,615	$1,654,488.00
Replacement	variable	268	957.00
Wildlife Certificates	7.00	62,607	409,699.00
		150,490	$2,065,144.00

Appendix I

Summary of Revenue and Expenditures 1985-86

Revenue	
Fisheries	$1,736,500
Forestry	3,069,200
Lands	964,100
Parks	4,644,600
Water Resources	16,753,700
Wildlife	2,180,500
Sundry	595,800
Sale of Government Assets	129,700
Government of Canada (Shared-cost receipts)	3,605,300
Total	$33,679,400

Expenditures	
Administration and Finance	$3,918,200
Regional Services	20,046,000
Engineering and Construction	6,783,800
Water Resources	8,628,400
Parks	12,887,300
Lands	2,008,300
Forestry	7,311,400
Fisheries	3,789,900
Wildlife	4,372,900
Surveys and Mapping	2,956,200
Resource Support Programs	589,000
Expenditures Related to Capital	12,380,800
Court Judgement (Water Resources)	86,000
Total	$85,758,200

Appendix II

Expenditures by Appropriation, 1985-86

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-1	**Administration and Finance**				
	(a) Minister's Salary	13.9	19.6	(5.7)	1
	(b) Executive Support				
	Salaries	219.9	261.4	(41.5)	—
	Other Expenditures	120.7	86.6	34.1	2
	(c) Research and Planning				
	Salaries	492.0	467.5	24.5	—
	Other Expenditures	41.2	51.5	(10.3)	—
	(d) Communications				
	Salaries	268.4	287.4	(19.0)	—
	Other Expenditures	136.2	195.2	(59.0)	3
	(e) Financial Services				
	Salaries	656.8	683.8	(27.0)	—
	Other Expenditures	172.6	205.9	(33.3)	—
	(f) Personnel Services				
	Salaries	546.1	518.2	27.9	—
	Other Expenditures	101.9	106.3	(4.4)	—
	(g) Computer Services				
	Salaries	272.5	263.8	8.7	—
	Other Expenditures	43.3	51.1	(7.8)	—
	(h) Administrative Services				
	Salaries	602.8	591.3	11.5	—
	Other Expenditures	90.2	98.5	(8.3)	—
	(j) Internal Audit				
	Salaries	133.5	116.9	16.6	—
	Other Expenditures	6.2	7.2	(1.0)	—
	TOTAL 12-1	3,918.2	4,012.2	(94.0)	

Explanation Number:

1. The Minister resigned January 3, 1986, creating a vacancy that was not filled for remainder of the fiscal year.
2. Due to the filling of a consulting contract, funding was transferred from a vacant position.
3. Funds were reallocated due to goods on order that were not received prior to year end.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-2	**Regional Services**				
	(a) Administration				
	Salaries	448.4	539.2	(90.8)	—
	Other Expenditures	618.5	694.4	(75.9)	—
	Problem Wildlife Control	123.8	140.2	(16.4)	—
	(b) Northwest Region				
	Salaries	860.2	868.2	(8.0)	—
	Other Expenditures	388.7	395.3	(6.6)	—
	(c) Northeast Region				
	Salaries	991.5	971.3	20.2	—
	Other Expenditures	689.9	655.8	34.1	—
	(d) Interlake Region				
	Salaries	1,220.2	1,217.8	2.4	—
	Other Expenditures	478.3	478.6	(0.3)	—
	(e) Southwest Region				
	Salaries	763.4	744.9	18.5	—
	Other Expenditures	282.5	285.7	(3.2)	—
	(f) Western Region				
	Salaries	1,026.1	983.4	42.7	—
	Other Expenditures	459.2	465.1	(5.9)	—
	(g) Southeast Region				
	Salaries	875.6	939.6	(64.0)	—
	Other Expenditures	368.3	406.9	(38.6)	—
	(h) Eastern Region				
	Salaries	764.6	775.4	(10.8)	—
	Other Expenditures	288.8	294.8	(6.0)	—
	(j) Whiteshell Region				
	Salaries	586.0	564.6	21.4	—
	Other Expenditures	210.9	201.4	9.5	—
	(k) Enforcement and Legislative Services				
	Salaries	175.4	194.3	(18.9)	—
	Other Expenditures	48.3	69.1	(20.8)	1
	(m) Fire Suppression — Administration				
	Salaries	349.7	339.8	9.9	—
	Other Expenditures	545.6	532.1	13.5	—
	(n) Fire Suppression — Operations				
	Salaries	1,422.9	1,434.7	(11.8)	—
	Other Expenditures	4,732.6	3,901.8	830.8	2
	Northern Development Agreement — Provincial — Fire Tac Crews	1,326.6	1,346.4	(19.8)	—
	TOTAL 12-2	20,046.0	19,440.8	605.2	

Explanation Number:

1. General restraint in spending as part of budget reduction exercise.
2. There were less fire emergencies than anticipated due to cool, rainy weather.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-3	**Engineering and Construction**				
	(a) Administration				
	Salaries	417.3	472.4	(55.1)	—
	Other Expenditures	124.2	111.9	12.3	—
	(b) Technical Services				
	Salaries	1,216.0	1,209.8	6.2	—
	Other Expenditures	88.6	95.0	(6.4)	—
	(c) Regional Engineering Services				
	Salaries	3,975.6	3,887.2	88.4	—
	Other Expenditures	905.7	937.5	(31.8)	—
	(d) Conservation Districts Authority				
	Salaries	55.4	53.9	1.5	—
	Other Expenditures	1.0	2.2	(1.2)	—
	TOTAL 12-3	6,783.8	6,769.9	13.9	

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12.4	**Water Resources**				
	(a) Administration				
	Salaries	316.6	314.8	1.8	—
	Other Expenditures	100.4	169.5	(69.1)	1
	(b) Water Licensing and Approvals				
	Salaries	402.8	371.0	31.8	—
	Other Expenditures	21.3	209.3	(188.0)	2
	(c) Water Management				
	Salaries	1,265.4	1,170.2	95.2	—
	Other Expenditures	201.8	293.9	(92.1)	3
	Waterway Maintenance	3,692.8	3,888.8	(196.0)	—
	(d) Hydrotechnical Services				
	Salaries	982.6	928.4	54.2	—
	Other Expenditures	805.5	835.7	(30.2)	—
	(e) Regional Management				
	Salaries	311.5	276.3	35.2	—
	Other Expenditures	35.5	41.4	(5.9)	—
	(f) Canada-Manitoba Water Development Agreement				
	Salaries	0.0	0.0	—	—
	Other Expenditures	236.8	247.3	(10.5)	—
	(g) Canada-Manitoba Flood Damage Reduction Agreement				
	Salaries	203.7	209.8	(6.1)	—
	Other Expenditures	23.2	161.6	(138.4)	4
	(h) Canada-Manitoba Value-Added Crops Production Agreement				
	Salaries	28.5	29.1	(0.6)	—
	Other Expenditures	0.0	0.9	(0.9)	5
	TOTAL 12-4	8,628.4	9,148.0	(519.6)	

Explanation Number:

1. A decrease in program activity was experienced.
2. In years prior to 1985-86, Canada billed the department for water storage charges at Lac Seul; this billing was charged by the Department to Winnipeg and Manitoba Hydros and the proceeds were credited to revenue. Although provision was made at the time of 1985-86 Estimates for this payment to Canada a decision was reached during the year to ask Canada to bill Winnipeg and Manitoba Hydros direct. This approximate $180.0 becomes non-recurring for all future estimates of expenditure and revenue.
3. Funds budgeted for anticipated legal action were not required.
4. Late signing of the extension to this Agreement contributed to the under-expenditure as programs were not as far advanced as was planned.
5. This Agreement was winding down in 1985-86 and the operating costs related to salaries were not required.

Appropriation Number	Service	1985-86			Explanation Number
		Actual ($'000)	Estimate ($'000)	Variance ($'000)	
12-5	**Parks**				
	(a) Administration				
	Salaries	298.4	283.3	15.1	—
	Other Expenditures	128.0	198.2	(70.2)	1
	(b) Park Planning				
	Salaries	676.4	668.9	7.5	—
	Other Expenditures	136.8	161.6	(24.8)	—
	(c) Program Management				
	Salaries	287.1	308.8	(21.7)	—
	Other Expenditures	42.6	56.3	(13.7)	2
	(d) Park Maintenance				
	Salaries	8,029.0	7,974.5	54.5	—
	Other Expenditures	2,754.3	2,843.2	(88.9)	—
	(e) Visitor Services				
	Salaries	375.8	373.5	2.3	—
	Other Expenditures	92.2	119.2	(27.0)	—
	(f) Grant Assistance	66.7	66.7	0.0	—
	TOTAL 12-5	12,887.3	13,054.2	(166.9)	

Explanation Number:

1. General restraints were practised in all operating costs to produce a requested reduction.
2. General restraints in all operating costs to produce a requested reduction.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-6	**Lands**				
	(a) Administration				
	Salaries	135.6	146.9	(11.3)	—
	Other Expenditures	17.0	19.4	(2.4)	—
	(b) Crown Lands Administration				
	Salaries	658.4	650.2	8.2	—
	Other Expenditures	94.5	127.3	(32.8)	1
	(c) Regional Management				
	Salaries	316.1	336.9	(20.8)	—
	Other Expenditures	87.3	95.1	(7.8)	—
	(d) Crown Lands Registry				
	Salaries	294.7	289.2	5.5	—
	Other Expenditures	246.2	249.0	(2.8)	—
	(e) Northern Development Agreement — Provincial — Wild Rice				
	Salaries	97.3	94.6	2.7	—
	Other Expenditures	61.2	72.2	(11.0)	—
	TOTAL 12-6	2,008.3	2,080.8	(72.5)	

Explanation Number:

1. Reduction in travel costs, weed control, word processing and other variable costs to produce a general restraint in all operating expenditures.

Appropriation Number	Service	1985-86			Explanation Number
		Actual ($'000)	Estimate ($'000)	Variance ($'000)	
12-7	**Forestry**				
	(a) Administration				
	Salaries	178.7	171.1	7.6	—
	Other Expenditures	60.2	31.6	28.6	1
	Grant Assistance	25.4	25.4	0.0	—
	(b) Forest Inventory				
	Salaries	587.7	574.6	13.1	—
	Other Expenditures	173.7	149.7	24.0	—
	(c) Timber Management and Development				
	Salaries	223.7	239.8	(16.1)	—
	Other Expenditures	28.0	53.8	(25.8)	2
	(d) Silviculture				
	Salaries	203.2	218.2	(15.0)	—
	Other Expenditures	1,123.4	1,257.6	(134.2)	—
	(e) Forest Protection				
	Salaries	627.9	736.4	(108.5)	—
	Other Expenditures	1,287.1	1,366.6	(79.5)	—
	(f) Regional Management				
	Salaries	632.9	694.5	(61.6)	—
	Other Expenditures	198.5	236.1	(37.6)	—
	(g) Northern Development Agreement — Provincial Forest Renewal				
	Salaries	411.3	454.4	(43.1)	—
	Other Expenditures	1,549.7	1,553.3	(3.6)	—
	TOTAL 12-7	7,311.4	7,763.1	(451.7)	

Explanation Number:

1. Additional costs due to grants to the National Forest Congress and Canadian Institute of Forestry and the costs of a seminar for delegates to attend the National Forestry Congress in Ottawa.
2. Provisions for printing materials and equipment for wood measuring course and signage were not utilized.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-8	**Fisheries**				
	(a) Administration				
	Salaries	196.9	194.9	2.0	—
	Other Expenditures	45.2	48.1	(2.9)	—
	(b) Regional Management				
	Salaries	687.0	703.2	(16.2)	—
	Other Expenditures	238.5	241.2	(2.7)	—
	(c) Fish Culture				
	Salaries	549.1	575.6	(26.5)	—
	Other Expenditures	243.8	234.9	8.9	—
	(d) Fisheries Enhancement				
	Salaries	514.6	521.5	(6.9)	—
	Other Expenditures	210.4	92.5	117.9	1
	(e) Commercial Fishing Management				
	Salaries	187.3	185.4	1.9	—
	Other Expenditures	31.4	32.0	(0.6)	—
	(f) Sport Fishing Management				
	Salaries	129.8	116.0	13.8	—
	Other Expenditures	40.0	40.0	0.0	—
	(g) Northern Fishermen's Freight Assistance	336.3	342.6	(6.3)	—
	(h) Fishermen's Loan Program — Administration	379.6	379.6	0.0	—
	TOTAL 12-8	3,789.9	3,707.5	82.4	

Explanation Number:

1. Additional expenditure due to an environmental impact study on the Lower Nelson River below the Kettle Dam.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-9	**Wildlife**				
	(a) Administration				
	Salaries	170.6	168.4	2.2	—
	Other Expenditures	22.4	22.1	0.3	—
	(b) Wildlife Management				
	Salaries	521.9	491.1	30.8	—
	Other Expenditures	158.3	153.9	4.4	—
	Grant Assistance	5.0	5.0	0.0	—
	Big Game Damage Compensation	176.3	115.3	61.0	1
	(c) Habitat Management				
	Salaries	411.6	401.7	9.9	—
	Other Expenditures	208.7	214.3	(5.6)	—
	(d) Biological Services				
	Salaries	403.8	392.8	11.0	—
	Other Expenditures	194.9	191.3	3.6	—
	Grant Assistance	12.0	12.0	0.0	—
	(e) Regional Management				
	Salaries	442.9	435.9	7.0	—
	Other Expenditures	261.7	259.4	2.3	—
	(f) Northern Development Agreement — Provincial Wildlife Management				
	Salaries	111.1	112.7	(1.6)	—
	Other Expenditures	140.2	124.4	15.8	—
	(g) Wild Fur Management				
	Salaries	349.9	366.7	(16.8)	—
	Other Expenditures	336.4	176.6	159.8	2
	Grant Assistance	60.9	30.9	30.0	2
	(h) Canada-Manitoba Waterfowl Damage — Prevention Agreement	384.3	200.0	184.3	—
	TOTAL 12-9	4,372.9	3,874.5	498.4	

Explanation Number:

1. Due to moderate winter conditions, the amount authorized was not fully required as big game were able to obtain natural food rather than depleting farmers' stored crops.
2. An Agreement with Canada and the department was reached regarding services to trappers. During 1985-86, the funding requirements anticipated were to be paid by an authorized Supplementary Supply request $220.0.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-10	**Surveys and Mapping**				
	(a) Administration				
	Salaries	230.5	212.0	18.5	—
	Other Expenditures	37.5	45.3	(7.8)	—
	(b) Legal Surveys				
	Salaries	605.8	593.3	12.5	—
	Other Expenditures	198.4	208.6	(10.2)	—
	(c) Control Surveys and Mapping				
	Salaries	878.2	851.6	26.6	—
	Other Expenditures	182.2	169.9	12.3	—
	(d) Geographic Mapping				
	Salaries	335.8	326.8	9.0	—
	Other Expenditures	83.2	103.1	(19.9)	—
	(e) Map Distribution and Remote Sensing				
	Salaries	277.4	278.2	(0.8)	—
	Other Expenditures	233.3	285.2	(51.9)	—
	Recoverable from Other Appropriations	106.1 CR	123.0 CR	16.9	—
	TOTAL 12-10	2,956.2	2,951.0	5.2	—

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-11	**Resource Support Programs**				
	(a) Manitoba Water Commission				
	Salaries	47.1	62.2	(15.1)	1
	Other Expenditures	30.8	42.4	(11.6)	2
	(b) Garrison Diversion Opposition				
	Salaries	58.3	57.7	0.6	—
	Other Expenditures	102.5	132.6	(30.1)	3
	(c) Conservation Districts Commission				
	Salaries	100.0	163.4	(63.4)	4
	Other Expenditures	29.8	30.3	(0.5)	—
	(d) Habitat Enhancement Fund	200.5	250.0	(49.5)	—
	(e) Natural Resource Institute Grant	20.0	20.0	0.0	—
	TOTAL 12-11	589.0	758.6	(169.6)	

Explanation Number:

1. A permanent position was filled on a part-time basis only.
2. Public hearings scheduled for March, 1986 were rescheduled for April, 1986.
3. Funding was encumbered for anticipated legal fees.
4. Position vacancies not filled until late in fiscal year.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
	Expenditures Related to Capital				
12-12A	ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS — NORTHERN DEVELOPMENT AGREEMENT — PROVINCIAL				
12-12A-5	**Parks**				
	(a) Northern Park Development	228.7	242.5	(13.8)	—
12-12B	ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS — OTHER CAPITAL PROJECTS				
12-12B-1	**Administration and Finance**				
	(a) Computer Equipment	122.2	123.5	(1.3)	—
12-12B-2	**Regional Services**				
	(a) Equipment Purchases	250.0	250.0	0.0	—
	(b) Regional Infrastructure	74.8	75.0	(0.2)	—
	(c) Western Regional Resource Road Maintenance	25.0	25.0	0.0	—
	TOTAL 12-12B-2	349.8	350.0	(0.2)	
12-12B-3	**Engineering and Construction**				
	(a) Materials Inventory	39.1 CR	150.0	(189.1)	1
	(b) Holding Account	1,562.6	2,500.0	937.4	2
	(c) Recoveries	1,562.6 CR	2,500.0 CR	(937.4)	2
	TOTAL 12-12B-3	39.1 CR	150.0	(189.1)	
12-12B-4	**Water Resources**				
	(a) Land Drainage Reconstruction	759.8	965.0	(205.2)	3
	(b) Bridge Replacement Program	506.5	515.0	(8.5)	—
	(c) Value-Added Crops Production Agreement	3,940.7	4,070.0	(129.3)	—
	(d) Water Development Agreement	391.6	430.0	(38.4)	—
	(e) Pasquia Polder III	91.8	250.0	(158.2)	4
	(f) Oak Lake Regulation	25.0	75.0	(50.0)	5
	(g) Dennis Lake Regulation	0.0	100.0	(100.0)	6
	(h) South Central/Interlake Capital Projects	84.2	100.0	(15.8)	—
	(j) Valley Town Dykes	1,024.0	1,540.0	(516.0)	7
	(k) Canada/Manitoba Agri-Food Agreement	47.9	300.0	(252.1)	8
	(m) Vermillion River Dam	11.1	0.0	11.1	9
	(n) Computer Equipment Purchase	167.9	0.0	167.9	10
	TOTAL 12-12B-4	7,050.5	8,345.0	(1,294.5)	

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-12B-5	**Parks**				
	(a) Park Development — Facilities and Infrastructure Improvement	1,568.6	1,617.4	(48.4)	—
	(b) Vacation Home Lots	126.5	180.0	(53.5)	11
	(c) Park Development — Major New Initiatives	669.4	860.0	(190.6)	12
	(d) Fort Whyte Centre (Taxes)	20.4	0.0	20.4	13
	(z) Recoverable from Destination Manitoba	260.0 CR	360.0 CR	100.0	14
	TOTAL 12-12B-5	2,124.9	2,297.4	(172.5)	
12-12B-6	**Lands**				
	(a) Cottage Lot Subdivision Upgrading	68.7	100.0	(31.3)	15
	(b) Equipment Purchases	44.8	45.2	(0.4)	—
	TOTAL 12-12B-6	113.5	145.2	(31.7)	
12-12B-7	**Forestry**				
	(a) Equipment Purchases	46.2	46.9	(0.7)	—
	TOTAL 12-12B-7	46.2	46.9	(0.7)	
12-12B-8	**Fisheries**				
	(a) Equipment Purchases	50.0	50.0	0.0	—
	(b) Red River Floodway Control Structure	9.0	50.0	(41.0)	16
	TOTAL 12-12B-8	59.0	100.0	(41.0)	
12-12B-9	**Wildlife**				
	(a) Equipment Purchases	33.9	34.0	(0.1)	—
	(b) Facility Enhancement Projects	35.3	40.0	(4.7)	—
	(c) Oak Hammock Marsh	365.9	366.0	(0.1)	—
	(d) Oak Hammock Marsh — Visitor Centre	45.0	45.0	0.0	—
	(z) Recoverable from Destination Manitoba	45.0 CR	45.0 CR	0.0	—
	TOTAL 12-12B-9	435.1	440.0	(4.9)	
12-12B-10	**Surveys and Mapping**				
	(a) Equipment Purchases	27.3	28.0	(0.7)	—
12-12C	**Capital Grants**				
	(Engineering & Construction)	1,862.7	1,926.5	(63.8)	—
	TOTAL 12-12	12,380.8	14,195.0	(1,814.2)	
12-13	**Water Resources**				
	Court Judgement	86.0	0.0	86.0	17

Explanation Number:

1. A revolving inventory account and stock on hand should not exceed $150.0 at any time.
2. The expenditures and subsequent recoveries are dependant upon the number of employees and salaries being paid and vary from year to year according to the programs being undertaken. The $2,500.0 Payment/Recoveries estimate approved in 1985-86 was to cover all eventualities and was not fully utilized.
3. The Swan Lake project was delayed. The Agricultural Flood and Erosion Control Sub-Program did not begin due to problems encountered acquiring right-of-way.
4. Contract plans and right-of-way were not available in time to permit construction to begin. Only surveys and drag-line work was carried out to facilitate future construction.
5. Fewer surveys were undertaken as the program was not sufficiently advanced.
6. Differences among local interest groups pertaining to the optimum level of regulation were not resolved.
7. St. Rose — Agreement was not signed until late in the year. Planning and obtaining right-of-way were not ready to proceed with construction.
8. Emerson — Work was postponed pending agreement with the U.S.A. to amalgamate their ring dykes at Pembina, N.D., with those at Emerson.
9. St. Adolphe — The north dyke closure location was not finalized.
8. The associated staffing complement was not fully in place until January, 1986, and therefore, the program could not progress to the extent originally anticipated.
9. These expenditures were not anticipated in the 1985-86 Estimates.
10. Payment to Manitoba Data Services of the outstanding balances for a mini-computer and a digital plotter.
11. Cabinet Approved Expenditure Reduction: $75.0
    The expenditure reduction was reversed in 1985-86; however, $21.5 was all the sub-appropriation requirements to the end of the fiscal year.
12. During 1985-86, funding in the amount of $169.0 to provide for 1985-86 General Salary Increase was removed from this sub-appropriation. Provisions for Major New Initiatives were not fully utilized to accommodate this funding requirement.
13. A one-time grant to Fort Whyte Centre for Environmental Education as payment of outstanding taxes on Crown property occupied by the centre.
14. All planned programs recoverable were not completed in 1985-86 and the balance of this recoverable funding will be transferred to 1986-87 Estimates.
15. Surplus resulted from delays in finalizing a road construction contract for subdivision work.
16. Surplus resulted from delays in completing the control structure.
17. This one-time expenditure relates to a judgement obtained by the plaintiff and contains $24.0 for damages and $62.0 for legal and court costs.

Appropriation Number	Service	1985-86 Actual ($'000)	1985-86 Estimate ($'000)	1985-86 Variance ($'000)	Explanation Number
12-7H	**Sectoral**				
	(1) Salaries	240.8	250.0	(9.2)	—
	(2) Other Expenditures	1,888.0	1,957.1	(69.1)	—
	(3) Recoveries	2,128.8 CR	2,207.1 CR	78.3	—
	SUBTOTAL 12-7H	0.0	0.0	0.0	
12-7J	**Canada/Manitoba Forest Renewal Agreement**				
	(1) Salaries	24.8	26.0	(1.2)	—
	(2) Other Expenditures	1,804.8	1,874.0	(69.2)	—
	(3) Recoveries	1,829.6 CR	1,900.0 CR	70.4	—
	SUBTOTAL 12-7J	0.0	0.0	0.0	
12-12B-11	(a) Sectoral — Forest Renewal	895.7	897.9	(2.2)	—
	(b) Canada/Manitoba Forest Renewal Agreement	1,202.9	1,203.0	(0.1)	—
	(z) Recoveries	2,098.6 CR	2,100.9 CR	2.3	—
	SUBTOTAL 12-12B-11	0.0	0.0	0.0	
	Total Jobs Fund				
	Expenditures	6,057.0	6,208.0	(151.0)	—
	Recoveries	6,057.0 CR	6,208.0 CR	151.0	—

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